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It is widely believed that behavioral economics justifies more intrusive regulation of financial markets, because people are not fully rational and need to be protected from their quirks. This Article challenges that belief. Firstly, insofar as people can be helped to make better choices, that goal can usually be achieved through light-touch regulations. Secondly, faulty perceptions about markets seem to be best corrected through market-based solutions. Thirdly, increasing regulation does not seem to solve problems caused by lack of market discipline, pricing inefficiencies, and financial innovation; better results may be achieved with freer markets and simpler rules. Fourthly, regulatory rule makers are subject to imperfect rationality, which tends to reduce the quality of regulatory intervention. Finally, regulatory complexity exacerbates the harmful effects of bounded rationality, whereas simple and stable rules give rise to positive learning effects.

KEYWORDS: Finance, Markets, Regulation, Economics

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ABSTRACT

It is widely believed that behavioral economics justifies more intrusive regulation of financial markets, because people are not fully rational and need to be protected from their quirks. This Article challenges that belief. Firstly, insofar as people can be helped to make better choices, that goal can usually be achieved through light-touch regulations. Secondly, faulty perceptions about markets seem to be best corrected through market-based solutions. Thirdly, increasing regulation does not seem to solve problems caused by lack of market discipline, pricing inefficiencies, and financial innovation; better results may be achieved with freer markets and simpler rules. Fourthly, regulatory rule makers are subject to imperfect rationality, which tends to reduce the quality of regulatory intervention. Finally, regulatory complexity exacerbates the harmful effects of bounded rationality, whereas simple and stable rules give rise to positive learning effects.

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INTRODUCTION

The recent financial crisis fostered lively debates about fundamental issues in financial law and regulation, with many commentators blaming the crisis on animal spirits and the irrationality of investors.[1] Such sentiments are supported by behavioral economics,

1. *See* GEORGE A. AKERLOF & ROBERT J. SHILLER, ANIMAL SPIRITS: HOW HUMAN PSYCHOLOGY DRIVES THE ECONOMY, AND WHY IT MATTERS FOR GLOBAL CAPITALISM ix (2009). This view follows the famous saying, attributed to J.M. Keynes, that the markets are moved by animal spirits, and not by reason. The original quotation is somewhat less eloquent:

which challenges standard economic assumptions about rational human behavior.[2] From a legal and regulatory viewpoint, the ordinary perception is that neoclassical economics emphasizes the importance of competition, whereas the behavioral paradigm strengthens the case for paternalist and interventionist policies, as it highlights the limits of human rationality and willpower.[3]

The debate on behavioral law and economics has often led to a simplistic division in which proponents of the behavioral paradigm advance pro-regulation arguments while advocates of the neoclassical paradigm make anti-regulation critiques.[4] Critics of the interventionist tendencies of behavioral law and economics have also sought to point out the theoretical and empirical weaknesses of the behavioral apparatus

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> Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on a mathematical expectation, whether moral or hedonistic or economic. *Most, probably, of our decisions to do something positive, the full consequences of which will be drawn out over many days to come, can only be taken as the result of animal spirits — of a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.*

JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY 161–62 (1936).

2. *See generally* ADVANCES IN BEHAVIORAL ECONOMICS (Colin F. Camerer et al. eds., 2004); ANDREI SHLEIFER, INEFFICIENT MARKETS: AN INTRODUCTION TO BEHAVIORAL FINANCE (2000); Robert J. Shiller, *From Efficient Markets Theory to Behavioral Finance*, 17 J. ECON. PERSP. 83 (2003). On behavioral law and economics, see generally Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998) [hereinafter Jolls et al., *Behavioral Approach*]; Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499 (1998).

3. *See* Sabine Frerichs, *False Promises? A Sociological Critique of the Behavioural Turn in Law and Economics*, 34 J. CONSUMER POL'Y 289, 305 tbl.1 (2011) (comparing different economic paradigms); *see generally* Franziska Rischkowsky & Thomas Döring, *Consumer Policy in a Market Economy: Considerations from the Perspective of the Economics of Information, the New Institutional Economics as well as Behavioural Economics*, 31 J. CONSUMER POL'Y 285 (2008) (discussing the policy implications of different paradigms in economics).

4. *Compare* the fiercely pro-regulation Oren Bar-Gill, *The Behavioral Economics of Consumer Contracts*, 92 MINN. L. REV. 749 (2008), *with* anti-regulation Richard A. Epstein, *The Neoclassical Economics of Consumer Contracts*, 92 MINN. L. REV. 803 (2008). *See also* Richard A. Epstein, *Behavioral Economics: Human Errors and Market Corrections*, 73 U. CHI. L. REV. 111 (2006) (admitting that people make mistakes, but preferring the neoclassical approach, and arguing that competitive markets and the common law are enough to deal with human errors).

in its entirety.[5] It may be argued that some of the opposition to behavioralism may be motivated by the political implications it has, or seems to have.[6]

This Article proposes a different perspective. While accepting some of the criticism of behavioral economics, it argues that the behavioral paradigm is broadly valid, but it does not imply a systematically interventionist policy. In fact, a number of reasons can be found for why behavioralism may have markedly anti-regulatory implications. In other words, there may be good reasons to regulate certain financial activities, but the behavioral perspective specifically seems to favor light-touch regulations and regulatory simplicity.

This thesis is based on five arguments. First, behavioral economics does not necessarily imply the need for heavier regulation, but rather presents the possibility for novel *light-touch* regulations that would not be possible within the neoclassical, rational-choice economic framework.[7] The principal forms of light-touch regulation examined here are default rules, targeted information disclosure, and cooling-off regulations. While it is not entirely clear whether these light-touch regulations result in more or less intervention overall, it is evidently possible to replace certain intrusive regulations with lighter ones.[8]

Second, it is argued that faulty market perceptions seem to be best corrected by market-based solutions. Behavioral economics implies that financial market participants tend to be misled by a range of factors about investment prospects, and some commentators have called for the establishment of regulatory tools to help "debias" faulty market

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5. *E.g.*, Stephen J. Choi & A. C. Pritchard, *Behavioral Economics and the SEC*, 56 STAN. L. REV. 1, 9–10 (2003) (criticizing the theoretical weaknesses of behavioral economics).

6. *E.g.*, Richard A. Epstein, *Richard Epstein on the Dangerous Allure of Behavioral Economics: The Relationship Between Physical and Financial Products*, TRUTH ON MARKET (Dec. 6, 2010), http://truthonthemarket.com/2010/12/06/richard-epstein-on-the-dangerous-allure-of-behavioral-economics-the-relationship-between-physical-and-financial-products/ (criticizing plans to regulate consumer finance more heavily, and highlighting the interventionist tendencies of behavioralists).

7. *See* Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism"*, 151 U. PA. L. REV. 1211 (2003) (proposing regulations that help less rational actors without imposing major costs on more rational actors); *see also* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS (Penguin Books rev. ed. 2009) (2008).

8. *See infra* Part III.

perceptions.[9] While such measures seem plausible, the prospects of regulatory debiasing in financial markets are not very promising since the track record of public authorities in predicting crises is poor, and their resources and incentives for doing so are weak in comparison with the private sector.[10] Some private sector actors already provide plenty of high quality debiasing activity, and it seems that it would be better to reinforce and harness those activities.[11]

Third, increasing regulation does not seem to solve problems caused by lack of market discipline, pricing inefficiencies, and financial innovation. In fact, better results may be achieved through simpler rules and more freedom.[12] This argument covers a wide range of issues that go to the heart of financial regulation; the objective is to pinpoint some crucial factors in light of behavioral economics.

Fourth, regulatory rule makers are subject to imperfect rationality, which tends to reduce the quality of regulatory intervention. This has led to the pejorative term "behavioral bureaucrats."[13] The analysis here is an extension of the widely accepted public choice theory, which challenges the assumption of perfect and well-intentioned lawmaking.[14] The findings of behavioral economics reinforce the tendencies identified by public-choice theorists, which means that in light of behavioralism, one ought to be even more skeptical about the prospects of regulatory intervention.[15] There are also some possibilities of designing institutions to mitigate the harmful effects of human psychology in lawmaking.[16]

Fifth, regulatory complexity exacerbates the harmful effects of limited rationality; in contrast, simple and stable rules give rise to positive learning effects. Paradoxically, it may even be argued that it is good to have some crises from time to time—but they should be

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9. *See* Christine Jolls & Cass R. Sunstein, *Debiasing Through Law*, 35 J. LEGAL STUD. 199 (2006) [hereinafter Jolls & Sunstein, *Debiasing*] (proposing legal strategies to reduce psychological biases).

10. *See infra* Part IV.

11. *See infra* Part IV.B.

12. *See infra* Part V.

13. Jolls et al., *Behavioral Approach*, *supra* note 2, at 1543.

14. On public choice theory, see generally WILLIAM A. NISKANEN, JR., BUREAUCRACY AND PUBLIC ECONOMICS (2d ed. 1996); MANCUR OLSON, JR., THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS (2d ed. 1971); GORDON TULLOCK, THE ECONOMICS OF SPECIAL PRIVILEGE AND RENT SEEKING (1989); Anne O. Krueger, *The Political Economy of the Rent-Seeking Society*, 64 AM. ECON. REV. 291 (1974).

15. *See infra* Part VI.

16. *See infra* Part VI.C.

relatively frequent and small in magnitude.[17] In terms of institutional solutions, this implies that the rules should not be excessively protective of investors, and that decentralized regulation has advantages not acknowledged by traditional theories of regulation.[18]

The rest of the Article is structured as follows. Part I outlines the behavioral approach and discusses critically its implications in the context of financial markets. Part II shows that it may be possible to mitigate the effect of certain behavioral imperfections through light-touch regulation in the contractual context. Part III examines whether mistaken investor perceptions might be improved in non-contractual ways and whether such a task should be given to the regulatory authorities. Part IV analyzes a range of issues related to behavioral economics—market discipline, pricing efficiency, and financial innovation—and draws out their regulatory implications. Part V notes the implications of behavioral theory for regulators and politicians and argues that behavioralism should lead us to be more skeptical about the benefits of regulatory intervention. Part VI makes the case for legal and regulatory simplicity due to its positive learning effects.

I. FINANCIAL MARKETS AND BEHAVIORAL ECONOMICS: AN OVERVIEW

At its essence, behavioral economics is a paradigm that applies experimental psychology to economic theory, highlighting departures from standard assumptions of rational choice.[19] It does not seek to understand the psychology of human behavior in all its depth, but rather looks for regularities that can be incorporated into economic models in order to make those models more realistic.[20] One way of presenting behavioral economics is to divide the experimental findings into three categories: *bounded rationality* (people have limited cognitive powers), *bounded willpower* (people often fail to choose the options that they themselves would consider best) and *bounded self-interest* (people care

17. *See infra* Part VII.A.

18. *See infra* Part VII.B.

19. *See supra* note 2 and accompanying text.

20. The regularity aspect is important because behavioral economics cannot build on chaos and irrationality. It highlights departures from the predictions of mainstream economic models, but departures that are in some way systematic and therefore predictable.

about fairness and the wellbeing of others).[21] The present discussion focuses on bounded rationality and bounded willpower because these theories imply that people tend to make systematically suboptimal choices. On the other hand, bounded self-interest will actually be beneficial for the functioning of markets and societies.[22]

A. BOUNDED RATIONALITY AND WILLPOWER: HEURISTICS AND BIASES

1. Bounded Rationality

Bounded rationality refers to the fact that real human persons do not have infinite and perfect cognitive processing capacity; therefore they do not always make optimal choices.[23] Not only is it costly and sometimes difficult to access relevant information (which is incorporated in economic models of asymmetric information), but it is also costly, time-consuming, and difficult to process whatever information is available.[24] In a world of complex decisions and large

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21. *See* Jolls et al., *Behavioral Approach*, *supra* note 2 (using the three-part distinction); *see also* Bruno S. Frey & Matthias Benz, *From Imperialism to Inspiration: A Survey of Economics and Psychology*, *in* THE ELGAR COMPANION TO ECONOMICS AND PHILOSOPHY 61 (John B. Davis et al. eds., 2004) (adopting a similar distinction, with the addition of happiness research).

22. On the benefits of bounded self-interest or fairness behavior, *see* ROBERT H. FRANK, PASSIONS WITHIN REASON: THE STRATEGIC ROLE OF THE EMOTIONS (1988); Robert H. Frank, *If* Homo Economicus *Could Choose His Own Utility Function, Would He Want One with a Conscience?*, 77 AM. ECON. REV. 593 (1987); Matthew Rabin, *Incorporating Fairness into Game Theory and Economics*, 83 AM. ECON. REV. 1281 (1993). The phenomenon of fairness behavior, and other departures from narrow self-interest, may of course have great relevance for the design of optimal financial regulation.

23. This idea was first systematically developed by HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR: A STUDY OF DECISION-MAKING PROCESSES IN ADMINISTRATIVE ORGANIZATIONS (1947); Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99 (1955). *See* John Conlisk, *Why Bounded Rationality?*, 34 J. ECON. LITERATURE 669 (1996), for an extensive literature review. Note that there are important differences among the authors in this field: Simon's contributions focused on the costs of information processing, and the emphasis was on choice involving complex data. The more recent behavioral economics literature attempts to create a more universal account of departures from mainstream economic theory.

24. *See* SIMON, ADMINISTRATIVE BEHAVIOR, *supra* note 23; Simon, *Rational Choice*, *supra* note 23; Conlisk, *supra* note 23.

amounts of relevant data, bounded rationality implies that people often make choices that are suboptimal relative to some ideal world—and to standard economic models.[25]

In order to reduce the costliness of information processing, people resort to what cognitive psychology calls *heuristics*.[26] Heuristic "rules of thumb" are mental devices that help to simplify cognitive tasks; however, the result of heuristics is often at odds with the ideal decision.[27] For example, people find it very difficult to estimate risks and probabilities accurately. This can be partly explained by the availability heuristic, which relies on intuitive impressions of what can more easily be called to mind.[28] Thus, most people give more consideration to risks of which they have a vivid mental image.[29] Probability judgments also rely on reference or "anchor" values, which are used as a basis for adjustments in different circumstances; the anchoring heuristic often helps to make more reasonable estimates of probabilities, but the final estimate significantly depends on the choice of initial value.[30]

Imperfect cognitive powers and the reliance on heuristics tend to give rise to behavioral biases—sometimes called anomalies—such as choices that systematically depart from the predictions of standard rational choice models.[31] The magnitude of departure varies depending on many factors, but the general direction of the biases is quite universal. Here is a summary of some of the most significant biases.

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25. *See* SIMON, ADMINISTRATIVE BEHAVIOR, *supra* note 23; Simon, *Rational Choice*, supra note 23; Conlisk, *supra* note 23.

26. *See* Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1124 (1974) (providing a seminal contribution on heuristics), *reprinted in Introduction* to JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982).

27. *See id.* at 1129.

28. *See* Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207 (1973) (providing a seminal contribution on the availability heuristic), *reprinted in* JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 164 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982).

29. *Id.*

30. Matthew Rabin, *Psychology and Economics*, 36 J. ECON. LITERATURE 11, 26, 29 (1998).

31. *See* Tversky, *supra* note 26, at 1124.

Salience and related biases. People tend to give relatively too much importance to salient, memorable, and vivid evidence, even at the expense of weightier, more rational evidence to the contrary.[32] This explains many phenomena in financial markets. For example, people tend to underestimate the probability of a future crisis, although in light of economic history, financial crises are quite common.[33] It also implies that people tend to overreact to noticeable but isolated events, such as fiascos in individual companies.

Optimism bias and overconfidence. Most people tend to overestimate their chances of success and to underestimate chances of failure and risk.[34] This means, for example, that people tend to assume that they are somehow more immune to risks that they consider likely to happen to other people.[35] Optimism has its benefits, but it also implies that people often fail to take prudent precautions against predictable uncertainties.[36] A related bias is overconfidence, which means that most people overestimate their ability to judge facts and circumstances; interestingly, expertise and past successes seem to exacerbate overconfidence.[37]

Hindsight and confirmation bias. When assessing future probabilities, people tend to give too much weight to events that already took place, assuming that what happened was nearly inevitable even if it

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32. *See id.* at 1127 ("[A]vailability is affected by factors other than frequency and probability . . . . In addition to familiarity, there are other factors such as salience"); *see also* Rabin, *supra* note 30, at 30–31.

33. On the tendency to disregard the lessons of history, *see, e.g.,* CARMEN M. REINHART & KENNETH S. ROGOFF, THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY xxvi – xxviii (2009); CHARLES P. KINDLEBERGER, MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES (4th ed. 2000).

34. *See* Neil D. Weinstein, *Optimistic Biases About Personal Risks*, 246 SCIENCE 1232, 1232 (1989); Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806, 806 (1980).

35. *See* Weinstein, *Optimistic Biases*, *supra* note 34; Weinstein, *Unrealistic Optimism*, *supra* note 34.

36. The benefit of optimism is that it makes life easier, and enables bolder action. *See* Jeffrey J. Rachlinski, *The "New" Law and Psychology: A Reply to Critics, Skeptics, and Cautious Supporters*, 85 CORNELL L. REV. 739, 760 (2000) (citing evidence that "only clinically depressed people make accurate predictions about their likelihood of success").

37. *See* Dale Griffin & Amos Tversky, *The Weighing of Evidence and the Determinants of Confidence*, 24 COGNITIVE PSYCHOL. 411, 411–12 (1992) (examining overconfidence among experts); *see also* Simon Gervais & Terrance Odean, *Learning to Be Overconfident*, 14 REV. FIN. STUD. 1, 1 (2001) (providing evidence of overconfidence as a result of successful trading).

did not seem so beforehand.[38] Closely related is the confirmation bias, which means that people tend to emphasize information that supports their past decisions and downplay contrary evidence.[39]

Extremeness aversion. People avoid extremes—or, more precisely, what they perceive as extremes.[40] Closely related are so-called "framing effects," whereby the choice of available options influences the outcome, even when some alternatives are seemingly irrelevant.[41] Additionally, there is the anchoring heuristic, which states that people are reluctant to depart significantly from an initial position or value, even when the initial position was chosen arbitrarily.[42] These heuristics and biases may lead to suboptimal choices, but they can also be used to help people make better choices by framing the options differently.[43]

Status quo bias. People are attached to the status quo and demand a great deal to justify departures from it.[44] Reference levels of income and rights, for example, have a significant impact on bargaining, because what matters most are the gains and losses from the reference point.[45] As will be shown, status quo bias may also be employed in law to create lighter regulations.[46]

Herding effects. When it comes to choices involving complex information and significant uncertainty, many people, consciously or

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38. Baruch Fischhoff, *Hindsight Is Not Equal to Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty*, 1 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 288, 288 (1975) (providing empirical evidence); Rabin, *supra* note 30, at 29–30 (discussing the hindsight bias).

39. *See* Robert Forsythe, Forrest Nelson, George R. Neumann & Jack Wright, *Anatomy of an Experimental Political Stock Market*, 82 AM. ECON. REV. 1142 (1992) (discussing empirical evidence); Rabin, *supra* note 30, at 26–29 (reviewing empirical literature).

40. *See* Itamar Simonson & Amos Tversky, *Choice in Context: Tradeoff Contrast and Extremeness Aversion*, 29 J. MARKETING RES. 281, 281 (1992) (discussing empirical evidence).

41. *See* Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449, 1458–60 (2003) (discussing framing effects).

42. *See* Rabin, *supra* note 30, at 29 (discussing anchoring and adjustment).

43. *See* THALER & SUNSTEIN, *supra* note 7, at 8 (proposing a range of policy opportunities along these lines).

44. *See generally* William Samuelson & Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 J. RISK & UNCERTAINTY 7 (1988) (providing experimental data).

45. *See* Rabin, *supra* note 30, at 13–16 (discussing examples of reference levels); *see also* Kahneman, *supra* note 41, at 1454–58 (discussing prospect theory).

46. *See infra* Part III.A.

unconsciously, look to what others are doing as evidence of what is optimal.[47] Imitation is an efficient heuristic in many circumstances, and sometimes herding is entirely rational.[48] However, herding may also be driven by greed, fear, and other psychological factors.[49] In any event, herding can have drastic social consequences, and it is an important (at least partial) explanation of financial manias and bubbles, such as the 1990s dot-com boom and the structured finance bubble of the early 2000s.[50]

Self-serving attribution bias. Most people are not very objective about their merits and failures: on the one hand, we tend to take too much credit for real or supposed successes (self-enhancing bias); on the other hand, we tend to downplay and even deny our responsibility for

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47. Andrea Devenow & Ivo Welch, *Rational Herding in Financial Economics*, 40 EUR. ECON. REV. 603, 603 (1996) ("Imitation and mimicry are perhaps among our most basic instincts.").

48. *Id.* at 605–07 (describing rational forms of herding in financial markets). *See also* Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023, 1037–41 (2000) (discussing multiple explanations for herd behavior). In the famous words of Keynes, "it is better for reputation to fail conventionally than to succeed unconventionally." KEYNES, *supra* note 1, at 63. Thus the optimal approach for fund managers is often to follow a commonly adopted investment strategy, so that unexpected losses will be attributed to systematic risk rather than to the fund manager's incompetence. This creates a structural tendency for fund managers to move with the market and not against it. The "herding incentive" seems to be especially strong for young fund managers. *See* Judith Chevalier & Glenn Ellison, *Career Concerns of Mutual Fund Managers*, 114 Q.J. ECON. 389, 391 (1999).

49. *See* Robert R. Prechter, Jr., *Unconscious Herding Behavior as the Psychological Basis of Financial Market Trends and Patterns*, 2 J. PSYCHOL. & FIN. MARKETS 120, 124 (2001) (advocating this view); William Landberg, *Fear, Greed and the Madness of Markets*, J. ACCT., Apr. 2003, at 79 (arguing that markets are driven by greed and fear).

50. *See* ROBERT J. SHILLER, IRRATIONAL EXUBERANCE (2d ed. 2005) (discussing financial market developments in the 1990s and early 2000s); *see also* KINDLEBERGER, *supra* note 33 (discussing earlier financial crises). There may, of course, be some investors who realize what is going on; but they may benefit from the herding behavior of others, or they may simply be unable to stop it. While herding alone is unlikely to explain the existence of financial bubbles, it explains why they tend to be so large. Other psychological factors also contribute to financial bubbles, including the availability heuristic. *See* Martti Vihanto, *Extending Austrian Economics Toward Psychology: Rules in Loan Decisions*, 17 REV. AUSTRIAN ECON. 323, 337–338 (2004) (explaining how the availability heuristic reinforces upward and downward tendencies in good and bad times, respectively).

failure (self-protective bias).[51] As will be shown, self-serving bias is important for understanding some of the dynamics of regulatory rule-making.[52]

2. Bounded Willpower

The notion of *bounded willpower* refers to the idea that people do not always choose optimally because they lack the willpower to do so. This notion is closely related to that of bounded rationality, but it emphasizes the aspect of emotions and our imperfect control over them. We sometimes find ourselves in powerful but transient emotional states, which almost seem to force us to choose something that we later regret.[53] For example, people wish to adopt healthier lifestyles in the interest of long-term well-being, but find themselves unable to quit their vices.[54]

Projection bias. One explanation for heat of the moment behavior is projection bias, which means falsely projecting current preferences onto the future.[55] We place too much importance on immediate benefits and downplay the costs that come later. In the realm of financial markets, an important instance of projection bias and weak self-control

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51. *See* Dale T. Miller & Michael Ross, *Self-serving Biases in the Attribution of Causality: Fact or Fiction?*, 82 PSYCHOL. BULL. 213, 214 n.1 (1975); Jerry Suls, Katherine Lemos & H. Lockett Stewart, *Self-esteem, Construal, and Comparisons with the Self, Friends and Peers*, 82 J. PERSONALITY & SOC. PSYCHOL. 252, 252 (2002); Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Biases*, 11 J. ECON. PERSP. 109, 110 (1997) (reviewing studies on self-serving biases).

52. *See infra* Part VI.A.

53. *See* Camerer et al., *supra* note 7, at 1238 ("People buy cars they cannot quite afford after breathing in the intoxicating new-car smell during a test drive. Others get married in the heat of passion or commit suicide when depression is particularly intense.").

54. Mark Grinblatt & Matti Keloharju, *Sensation Seeking, Overconfidence, and Trading Activity*, 64 J. FIN. 549, 549 (2009). Another example would be addictive behavior, which seems to explain some aspects of excessive trading in financial markets. *See* Roser Granero et al., *Gambling on the Stock Market: An Unexplored Issue*, 53 COMPREHENSIVE PSYCHIATRY 666, 666 (2012).

55. *See* George Loewenstein, Ted O'Donoghue & Matthew Rabin, *Projection Bias in Predicting Future Utility*, 118 Q.J. ECON. 1209, 1209 (2003).

is the tendency to spend beyond one's means, such as with high interest-rate credit cards.[56]

Procrastination. A different aspect of bounded willpower is procrastination, which refers to our tendency to postpone tasks that we should carry out now.[57] Procrastination seems to be rooted in present-based biases, where the costs of acting are incurred now and the benefits come later. A common example of procrastination is the tendency to delay unpleasant tasks until the last minute. In a sense, procrastination (costs now, benefits later) is the converse of projection bias and heat of the moment behavior (benefits now, costs later). Procrastination is one explanation of why many people find it difficult to save as much as they would like for "rainy days" and other future needs.[58]

B. DOES BEHAVIORAL FINANCE MATTER FOR REGULATION? OPPOSING VIEWS

What all this means for financial regulation is far from settled. Proponents of regulatory intervention have invoked investor irrationality as a basis for existing and further regulation.[59] It has been argued that the behavioral approach to law and economics has been markedly paternalistic and interventionist.[60] Regulatory skeptics have responded to these tendencies by pointing out that the evidence on investor irrationality is inconclusive and its magnitude probably insignificant;

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56. *See* George-Marios Angeletos et al., *The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation*, 15 J. ECON. PERSP. 47, 47–48 (2001) (discussing evidence and modeling the hyperbolic consumption model); Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373, 1373–75 (2004) (discussing the economics and regulation of credit cards).

57. *See* George A. Akerlof, *Procrastination and Obedience*, 81 AM. ECON. REV. (PAPERS & PROC.) 1, 3–8 (1991) (illustrating the costs of procrastination through mathematical models); Ted O'Donoghue & Matthew Rabin, *Doing it Now or Later*, 89 AM. ECON. REV. 103, 103 (1999) (creating a model of present-based biases).

58. *See* Richard H. Thaler & Shlomo Benartzi, *Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving*, 112 J. POL. ECON. S164 (2004) (discussing evidence and proposing a solution).

59. *See, e.g.*, Robert Prentice, *Whither Securities Regulation? Some Behavioral Observations Regarding Proposals for Its Future*, 51 DUKE L.J. 1397 (2002) (defending securities regulation against deregulation proposals); Lawrence A. Cunningham, *Behavioral Finance and Investor Governance*, 59 WASH. & LEE L. REV. 767, 770–71 (2002) (proposing more regulation); Donald C. Langevoort, *Taming the Animal Spirits of the Stock Markets: A Behavioral Approach to Securities Regulation*, 97 NW. U. L. REV. 135, 138–39 (2002) (proposing more regulation).

60. Choi & Pritchard, *supra* note 5, at 4–5.

that competitive markets will tend to wipe out irrational actors; and that, in any case, regulators also suffer from imperfect rationality and cannot be relied on to correct the biases of others.[61]

It may be that both sides to the debate have touched upon aspects of the truth, and it is not necessary to side with either extreme view.[62] Note, for example, that the implications of bounded rationality among regulators may be very different from those of bounded rationality among investors. If regulators do suffer from behavioral biases, that certainly is an important factor to consider in designing good laws and regulations. It is not, however, a sufficient reason to conclude that regulation should be designed as if all the relevant actors—investors, regulators, and others—acted according to the model of perfect rationality; the entire analysis has to be adapted.

Moreover, the opposition of competing visions of financial regulation is reinforced by psychological factors such as overconfidence and confirmation bias.[63] These biases lead researchers to overestimate their own infallibility and to highlight evidence that supports their convictions.[64] At the same time they downplay contrary evidence, especially when there are strong ideological issues at stake.[65] Sometimes even the terms of the debate get distorted: it is assumed that people are either *perfectly rational* or *entirely irrational*, when in fact the behavioral approach only speaks to bounded or imperfect rationality, willpower, and self-interest. The behavioral approach is best seen as a complement—not a rival—to alternative perspectives such as

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61. *See generally* Choi & Pritchard, *supra* note 5. *See also* Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023, 1056–58 (2000) (arguing that while herd behavior and status quo bias might result in a capital market failure, a mandatory disclosure system may not be necessary in highly evolved capital markets).

62. This is not mere extremeness aversion.

63. *See* John Kay, *Why Economists Still Stubbornly Stick to Their Guns,* FIN. TIMES, Apr. 16, 2011, at 7 (arguing that after the financial crisis, "the lesson most people have learnt is that they were right all along").

64. See, for example, Choi & Pritchard, *supra* note 5, at 71, who argue that the proponents of behavioral securities regulation are guilty of confirmation bias. It is however not difficult to see the same bias at work in Choi and Pritchard's own criticism of the behavioral approach; for example, they give significant importance to its theoretical weaknesses in Choi & Pritchard, *supra* note 5, at 9–11, forgetting that perfect-rationality economics is guilty of many similar defects, and certainly was more so in its earlier stages of development.

65. *Id.* at 30 n.147.

asymmetric information, principal-agent problems, and public choice theory. The model that most completely incorporates relevant factors (without becoming so complex that it no longer serves as a model at all) is likely to be the best model for explaining and predicting market and regulatory outcomes.[66] However—and here is the twist—the mere existence of biases and other departures from the standard rational choice model does not necessarily justify more extensive regulation of financial markets, as will be shown *infra*.

C. SOME DOUBTS ABOUT THE PRECISION AND APPLICATION OF BEHAVIORAL LAW AND ECONOMICS

Before proceeding to the substantive discussion, it is worthwhile to highlight some methodological challenges. The first relates to the precision of behavioral theory, and the second to the application of behavioral explanations to concrete cases in financial markets.

Behavioral economics is not a deep and holistic theory of real, flesh-and-blood human behavior. Rather, just like all economics, it is a simplification based on experimental findings, observations, and the like. Likewise, in psychology, there are various theories related to these findings, and our understanding of their deeper causes is limited.[67] The practical effect (and even the existence) of various behavioral biases and anomalies depends on a host of factors, including the specific person in question and the context. As such, the notion of bias is nothing more than a rough estimation of a likely direction of departure from ideal

66. Economists tend to overemphasize the importance of model simplicity, even though explanatory power is normally a more important factor of model quality. *See* Andrew M. Yuengert, *Model Selection and Multiple Research Goals: The Case of Rational Addiction*, 13 J. ECON. METHODOLOGY 77, 93 (2006) ("Empirical fit deserves its high rank among the goals economists seek. The principle of parsimony, however, should not be applied blindly to promote empirical fit, since it may retard the pursuit of other goals important to economists: understanding and policy usefulness."). One also wonders whether those same economists practice what they preach, given the high complexity of most economics publications. *See* Matthew Rabin, *A Perspective on Psychology and Economics*, 46 EUR. ECON. REV. 657, 673 (2002) ("Economists do not shy away from complicated models nearly as much as some claim when embroiled in the midst of abstract methodological debates. It is odd on the one hand to be told during such debates that economists must forego behavioral realism for the sake of keeping our models simple – when on the other hand we are holding a copy of *Econometrica*.").

67. *See* Choi & Pritchard, *supra* note 5, at 9–11 (critically reviewing the literature).

choice—interesting and sometimes useful, but not very precise.[68] Moreover, bounded rationality does not equate with irrationality: heuristics are often sensible and helpful responses to limited cognitive capacity, and they help us make satisfactory choices most of the time.[69]

This has important implications for the theory of regulation. Firstly, we do not fully appreciate why, when, and which people make suboptimal choices (and how suboptimal those choices really are). Thus we do not fully understand how to help people make better choices without harming their freedom to choose. Besides, lawyers (who usually have no training in behavioral sciences) should be especially wary about making sweeping law reform proposals based on an imperfect theory, the limits of which they may not appreciate.[70]

Secondly, the concept of *suboptimality* can be misleading, because it does not tell us if there is a serious problem, or whether the departure from perfect choice is so marginal that it makes no practical difference. This is a major issue to consider, because trying to assist people in one way or another may cause significant costs—especially indirect costs due to unintended consequences (this difficulty is aggravated by the limits of our understanding of these issues). Finally, the extent of biases and anomalies varies among persons, and people can learn and develop better strategies of behavior, often in response to past mistakes.[71]

The theoretical limits of behavioral law and economics also give rise to another challenge, namely the difficulty of isolating the effects of behavioral biases from those of other factors such as faulty monetary and regulatory policies. For example, the recent crisis has often been blamed on the failure of markets, and heavy government intervention has been seen as the logical response. Greed, shortsightedness, and

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68. *See* Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 GEO. L.J. 67, 67 (2002) ("[P]eople are not equally irrational and . . . situational variables exert an important influence on the rationality of behavior.").

69. That is, after all, the standard meaning of a *heuristic*. On the benefits and limits of "intuitive" thinking, see Kahneman, *supra* note 41, at 1467–69. One of the challenges is learning how and when to use heuristics correctly. *See generally* DANIEL KAHNEMAN, THINKING, FAST AND SLOW (Farrar, Straus & Giroux eds., 2011).

70. Mitchell, *supra* note 68, at 127 ("[L]egal scholars who have no training in the social sciences or who have only a superficial understanding of behavioral decision theory should refrain from the unaided application of behavior decision theory to the law.").

71. *See infra* Part VII.

investor irrationality have been prominent explanations, especially in the popular media.[72] But it is debatable whether such an explanation is sufficient, as is evidenced by the number of alternate theories proposed. For example, it has been widely argued that imprudent monetary policy was a major contributor to the crisis.[73] A long period of unusually and artificially low interest rates contributed to a climate of short-term speculation and distorted credit markets and risk-management. Unwise monetary policy also fueled the development of the infamous subprime mortgage markets.[74] It has also been demonstrated that a major cause of unhealthy subprime loans was a string of flawed government policies, which fostered and even ordered the growth of subprime loans without duly taking into account the inevitable unintended consequences.[75] Of course, there have also been many other contributing causes to the crisis, including insufficient and misleading accounting principles, inflexible and outdated principles of banking regulation, questionable bonus practices, problematic risk management, failed corporate governance, and the distortion of credit rating practices due to their role in the regulatory system, to name a few.[76]

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72. Surprisingly, even Judge Posner seemed to take this view, not on grounds of investor irrationality but based on the incentive problems of the financial industry. *See generally* RICHARD A. POSNER, A FAILURE OF CAPITALISM: THE CRISIS OF '08 AND THE DESCENT INTO DEPRESSION (2009).

73. *See* JOHN B. TAYLOR, GETTING OFF TRACK: HOW GOVERNMENT ACTIONS AND INTERVENTIONS CAUSED, PROLONGED, AND WORSENED THE FINANCIAL CRISIS 1–14 (2009) (investigating the failure of U.S. monetary policy); John Greenwood, *The Successes and Failures of UK Monetary Policy, 2000–08, in* VERDICT ON THE CRASH: CAUSES AND POLICY IMPLICATIONS 37 (Philip Booth ed., 2009) (charting the recent successes and failures of monetary policy in the UK).

74. TAYLOR, *supra* note 73, at 11–13.

75. *See id.* at 13–14; Mark W. Nichols, Jill M. Hendrickson & Kevin Griffith, *Was the Financial Crisis the Result of Ineffective Policy and Too Much Regulation? An Empirical Investigation*, 12 J. BANKING REG. 236, 237 (2011); STAN J. LIEBOWITZ, INDEP. INST., ANATOMY OF A TRAIN WRECK: CAUSES OF THE MORTGAGE MELTDOWN 4 (2008) (blaming the crisis on government interventions that undermined mortgage underwriting standards since early 1990s); R. CHRISTOPHER WHALEN, NETWORKS FIN. INST. AT IND. STATE UNIV., THE SUBPRIME CRISIS: CAUSE, EFFECT AND CONSEQUENCES 1 (2008) (blaming the public policy partnership that compromised companies in its attempt to enhance the availability of affordable housing); Eamonn Butler, *The Financial Crisis: Blame Governments, Not Bankers*, *in* VERDICT ON THE CRASH, *supra* note 73, at 51–57 (highlighting ill-advised government policies in the mortgage sector since the 1970s).

76. *See generally* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-739, FINANCIAL CRISIS HIGHLIGHTS NEED TO IMPROVE OVERSIGHT OF LEVERAGE AT FINANCIAL

There is room for legitimate disagreement and debate on the causes of the financial crisis (or earlier crises), but one implication for behavioral financial regulation is unavoidable: how are we to assess different regulatory responses, when we really do not know to what extent those problems were caused by imperfect rationality as opposed to misguided government policies? It may be possible to devise policies that help people make wiser choices. However, we have little information about how people would have acted in a sounder monetary-economic and legal-regulatory environment.[77] Perhaps "investor irrationality" is just a red herring—an easy explanation that in reality had only marginal explanatory power. Deviations from optimal choice might even be so insignificant as to merit little discussion, and even the best-designed light-touch regulations would have some unintended side-effects that are difficult to determine in advance—or even to appreciate

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INSTITUTIONS AND ACROSS SYSTEM (2009), *available at* http://www.gao.gov/new.items/d09739.pdf (charting the effect of leverage in financial institutions on the crisis); U.S. DEP'T OF THE TREASURY, FINANCIAL REGULATORY REFORM: A NEW FOUNDATION (2009), *available at* http://www.treasury.gov/initiatives/Documents/FinalReport_web.pdf (providing a range of policy recommendations); FIN. SERVICES AUTH., THE TURNER REVIEW: A REGULATORY RESPONSE TO THE GLOBAL BANKING CRISIS (2009), *available at* http://www.fsa.gov.uk/pubs/other/turner_review.pdf (investigating the causes of the crisis, especially in the UK); HIGH-LEVEL GROUP ON FINANCIAL SUPERVISION IN THE EU, LAROSIÈRE REPORT (2009), *available at* http://ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf (examining regulatory weaknesses in Europe and globally); COMM'N OF INVESTIGATION INTO THE BANKING SECTOR IN IR., MISJUDGING RISK: CAUSES OF THE SYSTEMIC BANKING CRISIS IS IRELAND (2011), *available at* http://www.bankinginquiry.gov.ie (examining the causes of the banking crisis in Ireland). Note, further, that many of these problems have been present in earlier financial crises. *See, e.g.*, George A. Akerlof et al., *Looting: The Economic Underworld of Bankruptcy for Profit,* BROOKINGS PAPERS ON ECON. ACTIVITY, 1993 at 1 (providing a classic study on the "looting" of financial companies). In a comment attached to the same article, Gregory Mankiw interestingly argues: "The paper shows that the savings and loan crisis [of the 1980s] was the result not of unregulated markets, but of overregulated ones (or, at least, poorly regulated ones). After reading the paper, one is left with the impression that the policy mistakes that happened here are probably not isolated, and that the only good solution is to get the government out of this kind of business altogether." *Id.* at 65.

77. The crisis of the late 1920s was originally blamed on investor irrationality, but the standard revisionist explanation puts the blame on misguided monetary policy. The growth of financial regulation as a result of that crisis was generally justified on the basis of "market failure," but in retrospect it is unclear to what extent such failure was intertwined with bad monetary policy.

in retrospect, as much of the discussion on the causes of the recent crisis demonstrates. Importantly, even apparent light-touch regulations carry the risk of complicating the legal system, increasing the prominence and discretionary power of regulatory authorities, and creating a justification for increasing intervention if those regulations seem to fail.

II. DEBIASING THROUGH LAW: LIGHT-TOUCH REGULATIONS

In general, bounded rationality and bounded willpower imply that people may make suboptimal choices. It may be appropriate to try to help them make better choices, and *in extremis,* to protect them from their weaknesses. However, it is not a foregone conclusion that heavy intervention is the optimal policy. It may be that simple "light-touch" regulations more effectively help market participants improve their choices. Indeed, our knowledge of certain common heuristics and biases points to different ways of influencing choice without imposing expensive and intrusive regulations.[78]

One framework for developing effective light-touch regulations is *asymmetric paternalism*.[79] The model assumes that some people behave more rationally than others. In turn, the more rational types would prefer more freedom and innovation, while less rational people would benefit from guidance and protection.[80] The optimal regulatory scheme may take these differences into account by seeking to help the less-rational actors make better choices, without unduly restricting the options (choices) of the more-rational actors.[81] There are four types of regulatory tools (in the order of increasing intervention) that seek to cater to both groups: *default rules*, *framing and information disclosure rules*, *cooling-off periods*, and *limitations on choice*.[82] The first three will be discussed in the following section, with applications to financial regulation.

A. DEFAULT RULES

The status quo bias explains why people often stick to default options unless there are clearly better alternatives.[83] The anchoring

78. *See* Jolls & Sunstein, *Debiasing, supra* note 9, at 200–01.
79. *See* Camerer et al., *supra* note 7, at 1211
80. *Id.* at 1219–20.
81. *Id.* at 1221.
82. *Id.* at 1224–50.
83. *Id.* at 1224.

heuristic also implies that if a departure is made, it is usually "anchored" to the default rule. There may also be other reasons for the strength of default rules; for example, default rules will mean more certain legal outcomes if there are interpretation problems by imperfectly rational judges.[84]

One area for potentially beneficial applications of default rule regulation is the home mortgage market, a market where bounded rationality and bounded willpower seem to present significant issues.[85] Consumers frequently focus on wrong or irrelevant information, make unrealistic assumptions, and cannot estimate probabilities accurately.[86] Moreover, the behavioral biases of consumers may be exacerbated by banks that benefit from exploiting these weaknesses.[87] For example, one of the causes of the recent mortgage crisis was the development of complex loan agreements that borrowers did not understand and that appeared much cheaper and less risky than in actuality.[88]

The standard response to such problems would be to either improve disclosure or product regulation.[89] The trouble is that merely requiring increased disclosure may backfire, especially if the purpose of the regulation can be avoided by asking applicants to sign complex disclosure forms they do not understand.[90] Some type of product regulation might be necessary to prevent harmful contractual provisions;

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84. *See* Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer & Robert W. Vishny, *Law and Finance*, 106 J. POL. ECON. 1113, 1121 (1998) (discussing the benefits of default rules).

85. *See* Elizabeth Warren & Oren Bar-Gill, *Making Credit Safer*, 157 U. PA. L. REV. 1, 39-41 (2008) (discussing problems with mortgages and credit cards).

86. MICHAEL S. BARR, SENDHIL MULLAINATHAN & ELDAR SHAFIR, NEW AMERICA FOUNDATION, BEHAVIORALLY INFORMED FINANCIAL SERVICES REGULATION 8 (Oct. 2008), http://www.newamerica.net/files/naf_behavioral_v5.pdf.

87. *See id.* at 3 (explaining that market participants may seek to either mitigate or exacerbate the behavioral biases of others, depending on their products and services). For example, consumers generally misunderstand compounding, and this is likely to reduce saving and increase spending; companies that offer investment services will want to reduce the bias to increase their savings base, and companies that offer credit will want to exploit the bias to increase borrowing. Unfortunately, especially in the case of lower-income persons, the incentives for bias-reduction seem to be weak.

88. *Id.* at 8 ("How many homeowners really understand how the teaser rate, introductory rate and reset rate relate to the London interbank offered rate plus some specified margin, or can judge whether the prepayment penalty will offset the gains from the teaser rate?").

89. *Id.* at 1.

90. *Id.*

examples include prepayment penalties, short-term ARMs, and balloon payments.[91] However, imposing an outright ban on innovative mortgage offers would stifle innovation and harm both lenders and borrowers in the long run.[92] It is also quite likely that such regulations would be imperfect. Moreover, the fear of imposing unnecessarily restrictive rules may cause unintended loopholes.

Default rules with opt-outs might be a better option.[93] There could be a default mortgage deal, or even a menu of "plain vanilla" mortgages, which would not include hard-to-understand details or complex interest rate calculation rules that exploit common psychological biases.[94] Such mortgages would be easier to compare across different offerings. A regulatory authority could periodically revise the default menu, possibly on the basis of consumer experimental design or survey research.[95]

Such default rules alone might not be sufficient if there are significant market pressures and incentives for lenders and brokers to provide alternative deals; however, the default rules could be made "sticky" through creative legal principles.[96]

For example, the law could stipulate different interpretative principles applicable to default and alternative contracts. If the loans did not work out, the alternative contracts would impose additional legal exposure on lenders through increased scrutiny or even a higher standard.[97] The result would be a safer and simpler mortgage market, combined with the possibility of innovation with products that are truly functional and that can be adequately explained to borrowers.

Something similar could be developed for credit cards.[98] Credit card product offerings seem to be systematically designed to exploit common behavioral biases; for example, many consumers underestimate how much they will borrow and overestimate their ability to pay on time.[99] In addition, the pricing of credit cards is set to benefit from late

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91. *Id.* at 8.
92. *Id*.
93. *See id.* at 8–11 (outlining a default rules proposal).
94. *Id.*at 9.
95. *Id.* at 11.
96. *Id.* at 9.
97. *Id.* ("[I]f default occurs when a borrower opts out, the borrower could raise the lack of reasonable disclosure as a defense to bankruptcy or foreclosure.").
98. *See id.* at 13–15 (outlining a proposal for default-rule credit card regulation).
99. *See* Bar-Gill, *supra* note 56, at 1375–76.

payment.[100] It seems that competitive market dynamics currently are not conducive to debiasing offerings by credit card companies.

A light-touch regulatory solution would be to develop a *default payment plan* for credit cards, so that "consumers would be required automatically to make the payment necessary to pay off their existing balance over a relatively short period of time unless the customer affirmatively opted-out of such a payment plan."[101] Going a bit further, it would also be possible to require credit card companies to develop a standard "plain vanilla" credit card with straightforward terms and honest pricing, analogous to the default mortgage loan regulation described above. Most people would likely choose these default options and, if necessary, these options could be rendered "stickier" through similar creative legal strategies as discussed above. Formally, the "stickier" the default regulation, the more it resembles outright product regulation.

B. INFORMATION DISCLOSURE

People often fail to correctly interpret large amounts of information, and the way the information is presented has a systematic influence on choices.[102] Behavioral economics implies that regulations should not necessarily emphasize disclosure of information, but rather the way relevant information is presented.[103]

Home mortgages and credit cards again provide a useful example. The existing regulatory scheme focuses on disclosure regulations, as well as usury laws and product restrictions.[104] In light of behavioral economics, the former may be insufficient, while the latter may be unnecessarily restrictive. The problem with disclosure regulation arises because the regulatory model is based on the assumption of asymmetric information and perfectly rational consumers.[105] As a result, consumers usually have more information than they can synthesize, and final

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100. *See* Ronald J. Mann, *Bankruptcy Reform and the "Sweat Box" of Credit Card Debt*, 2007 U. ILL. L. REV. 375, 384–92 (2007) (explaining the "sweat box" business model and the pricing of credit card debt).

101. BARR ET AL., *supra* note 86, at 13.

102. *See supra* note 41 and accompanying text.

103. *See* Camerer et al., *supra* note 7, at 1230–32 (explaining this principle and providing examples).

104. BARR ET AL., *supra* note 86, at 1.

105. *See id.* at 2.

decisions often hinge on factors consumers mistakenly take as paramount—financial theory notwithstanding—such as the size of monthly payments.[106] Credit card users also find it difficult to understand the complex terms and implications of different offerings.

In addition to default options, regulation may seek to debias consumer choices by influencing what information is presented and how. Some existing regulations do exactly this, such as those which stipulate the calculation and disclosure of the annual percentage rate (APR).[107] However, much more could be done. For example, consumers seem to make a number of unwise assumptions to justify their reliance on banks' potentially self-interested advice instead of doing more personal investigation. Consumers often believe that the bank is offering them the optimal deal, that they would only be offered the loan if the bank thought they could repay the loan, and that the regulators are protecting their interests.[108] Unfortunately, these and similar assumptions increase the opportunities for more ruthless mortgage lenders and brokers. One improvement could be to require credit providers to reveal to the borrower additional information regarding their loan application, such as the borrower's credit score and their qualifications for all of the lender's mortgage products.[109] That would pressure creditors and brokers to be honest in their dealings with mortgage applicants.[110] It might also be appropriate to move from strictly ex ante disclosure regimes towards standards-based ex post regulation that focuses on whether the disclosure was really meaningful and sufficient.[111]

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106. *Id.*

107. These rules are not perfect, however, because there tends to be some discretion and variation on which costs must be included in the calculation of APR. *See* LONDON ECON. & ACHIM DÜBEL, STUDY ON THE COSTS AND BENEFITS OF THE DIFFERENT POLICY OPTIONS FOR MORTGAGE CREDIT: FINAL REPORT TO THE EUROPEAN COMMISSION 168–74 (2009) (discussing the rules in different EU countries).

108. *See* BARR ET AL., *supra* note 86, at 5 ("Because I am qualified for the loan that must mean that the lender thinks that I can repay the loan. Why else would they lend me the money? Moreover, the government tightly regulates home mortgages; they make the lender give me all these legal forms. Surely the government must regulate all aspects of this transaction."). This speculation of consumer reasoning illustrates the problem of having too much superficial regulation: unsophisticated market participants may believe that they are better protected than they really are.

109. *Id.* at 6.

110. *Id.*

111. *See id.* at 6–7 (proposing standard-based ex post regulation). Note, however, that the standard-based regime might entail significant costs—especially uncertainty

Similar disclosure solutions could be developed for credit card agreements, where consumers generally find it difficult to understand compounding and timing issues.[112] A tailored disclosure regulation would focus on salient information such as:

> [H]ow long it would take, and how much interest would be paid, if the customer's *actual* balance were paid off only in minimum payments, and card companies could be required to state the monthly payment amount that would be required to pay the customer's actual balance in full over some reasonable period time.[113]

Such regulation would be simple, impose minimal cost, help consumers focus on relevant facts, and encourage healthier competition based on real value to consumers.

Financial regulation could also target overoptimism bias by exploiting the availability heuristic.[114] Many consumer credit customers significantly underestimate the risk of running into payment difficulties. A lack of caution may lead to tragic outcomes, and distorts the market in favor of risky products. Generalized warnings tend not to be effective, and merely demanding more disclosure would only exacerbate information overload.[115] What might be more effective is some tailored requirement of disclosing vivid—perhaps even shocking—information about real cases that have gone wrong.

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costs. Some of those costs could be reduced by providing credit providers with model disclosure forms that are likely to satisfy the standard. But one factor the authors do not consider is the problem of *hindsight bias* with ex post regulation: if a case goes to court after something goes wrong, a boundedly rational judge is likely to believe that those events, which actually did take place, were much more likely to have happened than they appeared to be to a reasonable person at the time of making the loan.

112. *Id.* at 12.

113. *Id*. at 13. As of February 2012, Federal Reserve Regulation Z requires credit card companies to include information on how long it will take for a customer to pay off his balance by making minimum payments. *See What You Need to Know: New Credit Card Rules Effective Feb. 22*, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM (Nov. 20, 2012), http://federalreserve.gov/consumerinfo/wyntk_creditcardrules.htm.

114. *See* Jolls & Sunstein, *Debiasing*, *supra* note 9, at 212–13 (discussing debiasing through the availability heuristic).

115. *See* Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U. L.Q. 417, 419 (2003) (discussing information overload in securities regulation).

Additionally, overoptimism could be debiased through information regulation that makes use of the common phenomenon of loss aversion, where losses are weighted more heavily than gains.[116] For example, home mortgage offers could be combined with statistical information about the amount of payment difficulties in similar types of loans over a specified period of time. By requiring firms to highlight the potential negative consequences of the use of their products, the law could help consumers make more informed choices without imposing much regulatory cost or limiting the options available to consumers. In another example, the U.S. Truth in Lending Act requires lenders to inform borrowers as follows: "If you obtain this loan, the lender will have a mortgage on your home. You could lose your home, and any money you have put into it, if you do not meet your obligations under the loan."[117] In practice, however, without further evidence it is difficult to assess the impact of generalized warnings. Further, we do not want to turn people into overpessimists.

C. COOLING OFF

Cooling-off periods may be the optimal regulatory solution when the issue is rooted in problems of self-control.[118] Bounded self-control may be relevant in various types of financial behavior. Furthermore, it is closely related to bounded rationality, as tempting offers that exploit projection bias tend to reduce rational deliberation.

The U.S. Mortgage Disclosure Improvement Act of 2008,[119] an amendment to the Truth in Lending Act (TILA), tries to improve consumer mortgage choice through cooling-off regulation: the "3/7/3 Rule" requires a seven business day waiting period once the initial disclosure is provided before closing a home loan.[120] In addition, if the

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116. *See* Jolls & Sunstein, *Debiasing*, *supra* note 9, at 205–06 (discussing the options for an advertising campaign to publicize the effects of breast-feeding on newborn health).

117. 15 U.S.C. § 1639(a)(1)(B) (2006).

118. *See* Camerer et al., *supra* note 7, at 1238–47 (discussing the behavioral case for cooling-off regulations).

119. Mortgage Disclosure Improvement Act of 2008, Pub. L. No. 110-289, §§ 2501-03, 122 Stat. 2654, 2855 (2008) (to be codified as amended at 15 U.S.C. § 1638(b)(2)).

120. David A. Miller, *New Truth in Lending Rules for New Homebuyers*, ARTICLE ALLEY (July 13, 2009), http://davemillerloans.articlealley.com/new-truth-in-lending-rules-for-new-homebuyers-1008568.html; Pub. L. No. 110-289, 122 Stat. 2654 (2008) (to be codified at scattered sections of 12, 15, 26, 37, 38, and 42 U.S.C.A.).

final APR is more than 0.125% different from the initial good faith estimate (GFE) disclosure, then the lender must re-disclose and wait another three business days before closing on the transaction.[121] Assuming that the self-control problem is a major issue, cooling-off rules might be the appropriate regulatory option in other areas, too. Choi and Pritchard wondered whether trading delays could be used fruitfully to discourage trading based on overconfidence and irrational, addictive speculation.[122]

There are, however, potential difficulties with such a regulatory strategy. For one thing, the precise nature of optimal cooling-off regulation requires much deliberation. On a general level, one can consider two alternatives: (a) *waiting periods*, during which the transaction cannot be completed, and (b) *withdrawal periods*, during which the initial decision may be reversed at will.[123] Each approach has different implications. The waiting period model is significantly more intrusive, and therefore not the prima facie alternative if we are to find the least interventionist regulation. Moreover, in the context of financial markets, a mandatory waiting period would have to be rather short, perhaps only a few days. The question then becomes how effective can such regulations be.

The withdrawal period option would therefore seem more workable, and indeed it is a standard feature of consumer contract regulations.[124] However, its effectiveness seems to be lessened by other behavioral biases. The status quo and procrastination biases imply that people are reluctant to alter their position once a clear decision has been made. The confirmation bias also implies that people tend to emphasize supportive evidence and downplay contrary evidence after a choice has been made.[125] In any case, an unconditional withdrawal period could not be very extensive in the financial market context.

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121. *Id.*

122. Choi & Pritchard, *supra* note 5, at 64–65.

123. *See* Camerer et al., *supra* note 7, at 1240–42 (discussing these alternatives).

124. Stefan Haupt, *An Economic Analysis of Consumer Protection in Contract Law*, 4 German L. Rev. 1137, 1147–51 (2003); *see also Protections for In-Home Purchases: The Cooling-Off Rule*, FEDERAL TRADE COMMISSION (Nov. 20, 2012), http://consumer.ftc.gov/articles/0176-protections-home-purchases-cooling-rule.

125. Given the complexity of certain financial instruments, it is possible that investors experience significant uncertainty about their choices, but such uncertainty combined with status quo and confirmation biases may provoke unfruitful defensiveness and tunnel vision instead of prudent carefulness.

Finally, it should be emphasized that cooling-off rules may also be implemented in a market-based manner, which has the advantage of more efficient innovation and trial-and-error processes. For example, an organizational rule requiring certain decisions to be confirmed by a relevant superior can also be seen as a form of cooling-off regulation. Such a rule may improve decision-making quality, because others are better able to spot cognitive biases.[126] Moreover, overconfidence and overoptimism are reduced when one is forced to consider alternatives and counterarguments.[127] It may not be appropriate or even possible to stipulate such requirements through law, but guideline-based soft law could foster valuable corporate governance solutions in this direction.

III. NON-CONTRACTUAL DEBIASING INFORMATION

A different question is whether decision-making can be improved by providing corrective or "debiasing" information outside the realm of contracts. For example, one commentator proposes the development of

> [a] small set of measures of irrationality that can be calculated and published at least monthly. These might include measures related to expected personal income, job security and asset values; measures of expectations about the performance of the economy as a whole; and measures of hyperbolic discount rates and other specific observable cognitive biases.[128]

It is possible to go further. Taking a cue from Jolls, Sunstein, and Thaler,[129] one could imagine someone engaging in the production of vivid propaganda—more effective than dry data—meant to "macromanage" public perceptions about the economy in a counter-cyclical manner. The various possible ways of debiasing markets have yet to be explored.

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126. *See* Jeffrey J. Rachlinski, *Heuristics and Biases in the Courts: Ignorance or Adaptation?,* 79 OR. L. REV. 61, 65–66 (2000).

127. Linda Babcock, George Loewenstein & Samuel Issacharoff, *Creating Convergence: Debiasing Biased Litigants,* 22 LAW. & SOC. INQUIRY 913, 920 (1997); Jeffrey J. Rachlinski & Cynthia R. Farina, *Cognitive Psychology and Optimal Government Design,* 87 CORNELL L. REV. 549, 588 (2002).

128. Leigh Caldwell, *Behavioural Financial Regulation*, VOX, (May 8, 2009), http://www.voxeu.org/index.php?q=node/3548.

129. Jolls et al., *Behavioral Approach*, *supra* note 2, at 1504, 1527 (discussing debiasing strategies).

The relevant question for the present discussion concerns the institutional arrangements for producing and distributing debiasing information. On the one hand, it seems laudable to seek to improve the action of public authorities by taking the latest behavioral research into account. On the other hand, there is reason to be skeptical about the ability of public authorities to perform their "debiasing role" without difficulties.

A. REGULATORY FAILURE

Before the recent financial crisis, privately run media sources such as *The Economist* published repeated warnings about mispricing in housing markets and abuses of securitization and complex financial derivatives.[130] In contrast, many regulatory authorities seemed blissfully ignorant of these issues—or at least did not talk about them—though undoubtedly some regulators had a more accurate picture of the problem. Certainly, not all market participants could claim to be more astute; we all suffer from some degree of cognitive bias, ignorance, and even incompetence. The relevant question here is how regulatory institutions should be designed so as to most effectively deal with these human imperfections.

There are several reasons why we should not be excessively optimistic about the ability of the government to resolve behaviorally-induced market failures. Firstly, a frequent challenge for regulators and legislators is that they may lack relevant knowledge.[131] Secondly, behavioral economics is not a holistic theory and there are various interpretations of the empirical findings, creating uncertainty in its application to regulation.[132] Thirdly, the exact implications of the theory in different settings are not clear, and it is difficult to say what kind of debiasing information would be most appropriate and effective.[133]

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130. *E.g.*, *The Bigger They Are: Are Big Banks in America and Europe Heading for Another Crisis*, THE ECONOMIST (Oct. 26, 2000), *available at* http://www.economist.com/node/404464 (criticizing securitization); *Pass the Parcel: Grumbles in the Booming Market for Credit Derivatives*, THE ECONOMIST (Jan. 16, 2003), *available at* http://www.economist.com/node/1537500 (critically discussing credit derivatives).

131. On the knowledge problem, *see* Friedrich A. Hayek, *The Use of Knowledge in Society,* 35 AM. ECON. REV. 519 (1945).

132. Choi and Pritchard, *supra* note 5, at 9–11.

133. *See supra* Part II.C.

Finally, regulators' ability to react to new information tends to lag because of weak incentives, bureaucratic work environments, and psychological inertia.[134]

This issue relates to a different challenge, which is that regulators may not have the best of incentives to perform well. They may be well-meaning, but regulators, too, are subject to shirking, self-interested motives, and occasional manifest abuses of authority. For example, a regulator of financial institutions may have an incentive not to bring emerging problems to the public's attention, for risk of being regarded as someone who failed in his job. The problem might just go away, and the costs of a real crisis would be borne by others.[135] These problems will be exacerbated by the cognitive biases of regulators—such as confirmation bias, overoptimism.[136]

B. DEEPER DIFFICULTIES AND MARKET SOLUTIONS

An argument can be made that incentive problems only apply to individuals, and thus there should be no difficulty in designing some "measures of irrationality" to be published alongside other macroeconomic data. Yet designing such a measure is not so simple. Not only would the knowledge and skill problems persist—and there are likely to be various interpretations of what measures are most appropriate—but the incentive problems, too, seem to run deeper.

The official measures of inflation are a case in point. Butler points out that in the UK, some years before the recent crisis, "Gordon Brown changed the price index that the Bank of England was to target to Consumer Price Index (CPI). This excludes housing costs, unlike the Retail Prices Index, so the soaring cost of housing was not taken into account by the Monetary Policy Committee (MPC)."[137]

Is government intervention needed? It seems that, prima facie, a market-based approach to debiasing and corrective information

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134. On the theory of government and bureaucracy, *see* GORDON TULLOCK, THE VOTE MOTIVE 72 (Peter Kurrild-Klitgaard ed., rev. ed. 2006); WILLIAM A. NISKANEN, JR., BUREAUCRACY AND REPRESENTATIVE GOVERNMENT (1971).

135. *See* Michael Beenstock, *Market Foundations for the New Financial Architecture, in* VERDICT ON THE CRASH, *supra* note 73, at 59 (noting the incentive problems of regulators). Butler, *supra* note 75, at 56, is of similar opinion: "The Bank of England warned the FSA that Northern Rock was operating riskily in October 2006, long before it collapsed; but no effective action was taken."

136. *See infra* Part VI.

137. Butler, *supra* note 75, at 56.

provision has several advantages. In the private sector, there is arguably more professional competence, better access to relevant information, and simply more people doing the job. Competition will tend to produce variety, innovation, and pressure to do a good job.

A difficult question is whether there will be sufficient incentives for private actors to engage in a market-debiasing information provision. There is, however, reason to believe that some incentives exist. Firstly, the long-term profitability of financial institutions demands that they seek to reduce the harmful effects of cognitive biases, at least internally. Secondly, it is also conceivable that firms could improve client satisfaction and loyalty—without suffering a significant loss of business—by helping them make better choices. Thirdly, there are other actors, such as business newspapers and financial advisors, who could capitalize on the provision of better—including debiasing—information for financial decision makers. Indeed, some have been doing so for quite a while and had good effect.[138]

If public intervention seems appropriate, it should be limited to light-touch schemes such as incentivizing private actors and advertising the best privately-produced information for the general public. Regulatory authorities could also work with researchers in the field—but without compromising their independence—who are in a better position to publicize contrarian views on markets.[139] One could also consider creating an incentive scheme for financial supervisors, so that they would be awarded for correctly spotting weak signals in the economy; however, it is far from clear how to design such a scheme.

IV. MARKET DISCIPLINE, EFFICIENCY, AND INNOVATION

This part discusses a range of broad issues related to rationality and financial regulation: the role of market discipline, the notion of (informational) efficiency in financial markets, and the impact of financial innovation on regulatory strategy in the context of bounded rationality. These are complex issues, so the discussion will necessarily be limited in scope. The objective is to illustrate that although there are

138. This is not to deny that news media may at times suffer from the temptation to provide "what people want to hear" which may be different from they should hear. *See* SHILLER, *supra* note 50, at 102 (critically analyzing the financial media).

139. Naturally, it sometimes seems that regulators and politicians are more eager to promote academic research that presents a favorable picture of their activities. This creates a structural bias against contrarian research.

reasons to depart from the usual assumption of perfectly rational actors, more complex and intrusive regulation may not be the correct conclusion, and at least in some cases the opposite may be true.

A. MARKET DISCIPLINE AND HEALTHY COMPETITION

There has been plenty of debate on the extent to which market discipline—pressure, from shareholders and creditors, to operate profitably—are sufficient to keep market actors under control. Here the focus is on the narrower issue of whether stronger market discipline helps to mitigate problems arising from bounded rationality and willpower and, if so, what kind of rules and institutional arrangements facilitate market discipline.

Although research is limited on this matter, an argument can be made that stronger competition and market discipline reduce the harmful effects of psychological bias. Thus, better market players should win, and suboptimal decision-makers should lose. It has been argued, therefore, that psychological anomalies—departures from optimal choice—should not be taken as a given, since they are influenced by social processes.[140] For example, repetitive conditions facilitate learning from errors, and healthy competition tends to intensify valuable learning and the discovery of better habits of choice.[141]

On the other hand, it may be argued that strong competition and market discipline sometimes create perverse incentives that exacerbate imperfect rationality. For example, business strategies that exploit anomalies may be reinforced by competitive conditions, which may explain the phenomenon of declining ethical and professional standards during boom periods.[142] Gamble-for-life situations may also buttress some biases such as overoptimism.

Market discipline and competition are never perfect, but in general terms it is conceivable that they are improved by lesser regulation and harmed by heavy regulatory intervention. Banking regulation is a case in

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140. Bruno S. Frey & Reiner Eichenberger, *Economic Incentives Transform Psychological Anomalies,* 23 J. ECON. BEHAV. & ORG. 215, 215 (1994).

141. The latter point is supported by the theory of competition as a discovery process. *See, e.g.*, ISRAEL M. KIRZNER, COMPETITION AND ENTREPRENEURSHIP 11–12 (1973); William N. Butos & Roger G. Koppl, *The Varieties of Subjectivism: Keynes and Hayek on Expectations,* 29 HIST. POL. ECON. 327, 355 (1997).

142. *See* SHILLER, *supra* note 50, at 210–12 (noting that speculative bubbles are often accompanied by declining ethical standards until some scandal or crackdown comes about).

point. According to the standard version of the story, the collapse of institutions such as Lehman Brothers and Northern Rock was due to greedy bankers and not enough regulation—hence, more intensive and global regulation is needed. Unfortunately, that interpretation misses a big part of the picture.

The modern banking system and the "too-big-to-fail syndrome" are not results of natural market dynamics.[143] In fact, an important contributing cause of these phenomena is the rise of increasingly complex banking regulation, the essence of which was to concentrate monitoring efforts in the hands of public authorities instead of, and at the expense of, primary stakeholders such as depositors and other lenders. Instead of facilitating control and monitoring by the market, the existing regulatory paradigm has made the relationships between financial institutions and regulators paramount, leaving primary stakeholders out of the picture.[144] Certainly in recent times, banks have made significant mistakes in their desire to innovate beyond the traditional model of prudent banking. But one is forced to ask whether regulators were able to prevent this market failure, given that they were far behind the curve and had insufficient incentives (and possibly methods as well) to stop the phenomenon.[145]

The better view seems to be that this lack of prudence was rendered possible by the inexistence of genuine monitoring and control by primary stakeholders, who were lulled into a false sense of security by the complexity of the regulatory system and the seemingly competent activity of regulators.[146] As financial institutions now only report to their regulators and not to the public, more traditional banks will find it increasingly difficult to capitalize on their business model in the competitive environment. This need not be so:

> Before depositors relied on government for protection, banks maintained much more substantial capital/asset ratios; in fact, banks

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143. For criticism of the too-big-to-fail doctrine, *see* IMAD A. MOOSA, THE MYTH OF TOO BIG TO FAIL (2010).

144. *See* Ross Levine, *The Corporate Governance of Banks: A Concise Discussion of Concepts and Evidence* (World Bank Policy Research, Working Paper No. 3404, 2004), *available at* http://ssrn.com/abstract=625281.

145. David T. Llewellyn, *The Global Financial Crisis: The Role of Financial Innovation, in* VERDICT ON THE CRASH, *supra* note 73, at 129.

146. HOWARD DAVIES & DAVID GREEN, GLOBAL FINANCIAL REGULATION: THE ESSENTIAL GUIDE 27 (2008).

> used to advertise prominently the amount of their capital and surplus. But deposit insurance . . . has permitted banks to hold much lower, indeed, dangerously lower amounts of capital.[147]

Finally, the coffin of market discipline was sealed by generous deposit insurance schemes, which, coupled with public bailouts, have largely externalized the costs of a crisis, thereby weakening the incentives of bankers to play safe.[148] On the other hand, in some cases they have reduced to nil depositors' incentives to find out where they put their money, promoting short-term profit-seeking and recklessness—the rise and fall of Icelandic banks is a case in point.[149] As Merton and Bodie have highlighted, the current global banking system combines demand-deposits with generous deposit insurance, making it systematically fragile and crisis-prone. At the same time, it was controlled only by public supervisors, whose skills and incentives are relatively weak.[150]

Thus, the regulatory paradigm of banking has weakened market discipline by promoting moral hazard across the board: it has facilitated the success of imprudent banking models and harmed the incentives of investors, depositors and other stakeholders to stay alert, be prudent, adopt good habits, and avoid biases such as overoptimism. It is of course debatable what a less-interventionist or free-market banking system should look like, but it would certainly be very different from what we have today. In light of behavioral theory, the system should be geared towards strengthening market discipline and healthy competition by promoting transparency to the public and incentives to act prudently.[151] While it is true that many people cannot understand

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147. GEORGE J. BENSTON, REGULATING FINANCIAL MARKETS: A CRITIQUE AND SOME PROPOSALS 26 (1998).

148. Not all the costs of failure fall on taxpayers, because deposit insurance schemes are usually funded (at least partly) by the banks themselves. But from the viewpoint of individual banks, even this can be seen as a pooling of risks without a pooling of the increased revenue due to more risk-taking; thus riskier business models are at an advantage.

149. *See generally* SPECIAL INVESTIGATION COMMISSION, REPORT OF THE SPECIAL INVESTIGATION COMMISSION (April 12, 2010), http://sic.althingi.is/ (the "truth commission" report on Iceland's bank collapse).

150. Robert C. Merton & Zvi Bodie, *Deposit Insurance Reform: A Functional Approach*, *in* 38 CARNEGIE-ROCHESTER CONFERENCE SERIES ON PUBLIC POLICY 1 (1993), *available at* http://www.people.hbs.edu/rmerton/DepositInsuranceReform.pdf.

151. *See* Kevin Dowd, Martin Hutchinson, Simon Ashby & Jimi M. Hinchliffe, *Capital Inadequacies: The Dismal Failure of the Basel Regime of Bank Capital*

complex finance, the reintroduction of personal responsibility would provide market opportunities for simpler banks and discourage complex and opaque financial institutions.

A debate exists on whether a free-market banking system should permit fractional reserve banking, or mandate a 100% reserve requirement for all demand deposits.[152] Naturally, the stricter view would imply that a great part of savings would be channeled to other investments, such as time deposits and money market funds instead of demand deposits. The benefit, in terms of financial stability, would lie in the fact that these investment vehicles are not as crisis-prone as demand deposits.[153] Naturally, alternative investment channels may create their own problems, which have to be addressed separately.[154]

B. IMPROVING MARKET EFFICIENCY AND STABILITY

Related to the issue of competition and market discipline is the concept of (informational) market efficiency. In simple terms, the idea of market efficiency is that market prices reflect all relevant information.[155] There are varying opinions on the extent to which

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Regulation, 681 POLICY ANALYSIS (Cato Institute, Washington D.C.), July 29, 2011 [hereinafter Dowd et al., *Capital Inadequacies*], *available at* http://www.cato.org/pubs/pas/pa681.pdf. In an excellent critique of the current regime of bank capital regulation, these authors advocate, as the ideal model, "free banking or financial laissez faire," which includes "the reintroduction of extended liability for senior offices and shareholders." They make the interesting argument that if one wants financial stability, one has to choose between *either* a truly free-banking regime, which consistently builds on investor and personal responsibility, *or* a system that puts clear and inflexible limits on what banks can do.

152. *See generally* JESÚS HUERTA DE SOTO, MONEY, BANK CREDIT, AND ECONOMIC CYCLES 647 (3d ed. 2012).

153. *See* Jonathan R. Macey, *Reducing Systemic Risk: The Role of Money Market Mutual Funds As Substitutes for Federally Insured Bank Deposits* (Yale Law Sch. Ctr. for Studies in Law, Economics & Pub. Policy, Research Paper No. 422, 2011), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1735008.

154. *See* William A. Birdthistle, *Breaking Bucks in Money Market Funds,* 2010 WIS. L. REV. 1155, 1155 (arguing that the current U.S. rules relating to money market funds are likely to mislead investors and increase the likelihood of problems in the future).

155. There are different forms of the *efficient market hypothesis* (EMH), which states that markets are informationally efficient. In its weak form, EMH says that asset prices reflect all past publicly available information. According to the semi-strong EMH, prices reflect all publicly available information and they instantly adjust to new public information. In the strong form, EMH claims that prices reflect hidden or insider

markets reflect informational efficiency, and the behavioral theory has been at the forefront of criticizing naïve theories of market efficiency.[156] The more relevant inquiry for the present discussion is the following: Is the relative inefficiency of many financial markets a reason to favor more regulation—or perhaps less?

1. General Considerations

There are at least two challenges to the view that inefficient markets call for increased regulation. The first is that not all pricing inefficiencies are so significant that they merit public intervention, and the unintended costs of such intervention should be taken into account. The second challenge is that it may be difficult to improve the informational efficiency of markets in ways other than by promoting market innovations and improving market transparency.[157]

Perhaps some rules ought to be changed and updated to reflect the current state of financial theory. As an example, some argue that the fraud-on-the-market theory in U.S. securities law currently depends on flawed assumptions of market efficiency, and therefore it should be

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information too. There is little evidence for the strong form in most markets, but some evidence for the weak and semi-strong versions of EMH. *See* Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work,* 25 J. FIN. 383, 383 (1970).

156. *See* Shiller, *supra* note 2, at 1–2 (providing evidence against the efficient market hypothesis); M. C. Findlay & E. E. Williams, *A Fresh Look at the Efficient Market Hypothesis: How the Intellectual History of Finance Encouraged a Real "Fraud-on-the-Market,"* 23 J. POST KEYNESIAN ECON. 181 (2001) (arguing that evidence supporting the hypothesis was never very strong); Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets,* 70 AM. ECON. REV. 393, 393 (1980) (arguing that prices cannot perfectly reflect all the available information, because that would imply that the return to gathering information is nil, and the market for information would collapse). *But see* Eugene F. Fama, *Market Efficiency, Long-Term Returns, and Behavioral Finance,* 49 J. FIN. ECON. 283 (1998) (discussing some of the literature and defending the efficient market hypothesis against critics).

157. Note, however, that in many cases pricing inefficiency may be caused by inflationary monetary policies; then, the issue is not regulation but misguided government policy. *See* Robert J. Shiller, *Low Interest Rates and High Asset Prices: An Interpretation in Terms of Changing Popular Economic Models,* (Nat'l Bureau of Econ. Research, Working Paper No. 13,558, 2007) (arguing that part of the problem is the *money illusion* as many people are not used to thinking in terms of the "real interest rate" and they get confused by price inflation).

changed to incorporate the findings of behavioral finance in determining reliance, materiality, causation and damages.[158]

But, it seems less likely that increasing regulatory law is a warranted consequence of market inefficiencies. For example, Langevoort argues that psychological biases, such as overoptimism, lead companies to falsely portray themselves to the public.[159] He speculates that it might be possible to "debias" that tendency by changing the disclosure rules so that, among other things, "corporations wishing to avoid liability would have an incentive to bring into the disclosure process persons not subject (or less subject) to the same biases."[160] There are however, two problems, which Langevoort himself points out. The first is that his proposal would be "extremely costly" and one should ask "whether biases built on overoptimism, at least, are ones with which we really want to interfere through legal intervention, even if we could."[161] The second is that there just may not be a problem that is worth solving: "Of course, market professionals and other savvy investors will discount many kinds of corporate hype, and, at least in those settings where efficiency properties predominate, such disclosures may have minimal market-price impact".[162]

There are, on the other hand, many reasons why market efficiency considerations may not justify heavy regulation—and indeed point towards less regulation.[163] Shiller points out that we do not have much information about the long-term stabilizing effects of different rules in relation to regulations that restrict certain kinds of investments.[164] Examples of apparently market-stabilizing rules include "circuit breakers" adopted by U.S. stock exchanges (i.e., shutting down markets

158. Frederick C. Dunbar & Dana Heller, *Fraud on the Market Meets Behavioral Finance,* 31 DEL. J. CORP. L. 455, 456 (2006); Langevoort, *supra* note 59, at 176.

159. Donald C. Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (and Cause Other Social Harms), in* BEHAVIORAL LAW AND ECONOMICS 144 (Cass R. Sunstein ed., 2000).

160. *Id.* at 157.

161. *Id.* at 158.

162. *Id.* at 157.

163. It is interesting to note that in their popular book THE IMPACT OF PSYCHOLOGY ON GLOBAL CAPITALISM, AKERLOF AND SHILLER, *supra* note 1, propose basically no regulatory solutions to reduce the potential problems they perceive, although they do advocate more aggressive fiscal policy in the Keynesian tradition.

164. SHILLER, *supra* note 50, at 226–28.

in times of rapid price drops), and the "uptick rule" on short selling, imposed by the Securities and Exchange Commission ("SEC").[165]

These measures only deal with very short-term price volatility, but policies that stabilize such short-term market movements may not be so useful for addressing long-term mispricing—the more significant issue. Paradoxically, Shiller argues that sudden price changes may help markets to correct faster and avoid the illusion of safety during a speculative bubble.[166] Short-term volatility is not always harmful, and in any case, the bursting of a speculative bubble is, on balance, a good thing, even if the corrective process is painful.

2. Regulating Short Selling

During the recent crisis, a wave of attacks on short selling emerged in the popular press on the basis that it destabilizes markets, and regulators across the globe imposed temporary bans on the short selling of stocks.[167] Presently, many jurisdictions impose some restrictions or disclosure requirements on short selling.[168] Are these concerns justified, and is regulation the appropriate reaction?

The broad consensus in finance literature is that short selling generally promotes pricing efficiency.[169] Noted long-term value investors have also defended short selling: Klarman has argued that it provides a counterweight to the general bullishness of Wall Street,[170]

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165. The "uptick rule" holds that short sales are only allowed if the preceding trade was on an increasing price. Regardless of what one thinks of short selling, the effectiveness of the "uptick rule" has been questioned in recent times, and in July 2007 the SEC formally rescinded the rule. *See* Erik. R. Sirri, *Regulatory Politics and Short Selling,* 71 U. PITT. L. REV. 517, 523-24 (2010).

166. SHILLER, *supra* note 50, at 226–28.

167. *See* Sirri, *supra* note 165, at 525–31 (discussing various new rules imposed by the SEC in the U.S.); Alessandro Beber & Marco Pagano, *Short-Selling Bans Around the World: Evidence from the 2007–09 Crisis* (2011), *available at* http://ssrn.com/abstract=1502184 (studying these bans empirically with global data).

168. *See* Joseph Cotterill, *Short-selling Rules, the World Tour,* FIN. TIMES ALPHAVILLE (Mar. 18, 2010, 2:56 PM), http://ftalphaville.ft.com/blog/2010/03/18/179056/short-selling-rules-the-world-tour (providing an overview).

169. *See, e.g.*, Ekkehart Boehmer & Juan (Julie) Wu, *Short Selling and the Price Discovery Process*, REV. FIN. STUD. (forthcoming), *available at* http://ssrn.com/abstract=972620; Charles M. Jones & Owen A. Lamont, *Short Sale Constraints and Stock Returns*, 66 J. FIN. ECON. 207, 207 (2002).

170. SETH KLARMAN, MARGIN OF SAFETY: RISK AVERSE INVESTING STRATEGIES FOR THE THOUGHTFUL INVESTOR (1991).

while Warren Buffett maintains that there is a correlation between short selling and fraudulent accounting,[171] suggesting that short sellers may help to uncover fraudulent accounting and related problems. Even so-called "naked short selling"[172] does not seem to be harmful according to a study by Boulton and Braga-Alves, who find no connection between the level of naked short selling and future stock declines:

> Our results suggest that the SEC's recent regulatory actions restricting naked short selling may have been misplaced, as we find no evidence that naked short sellers are informed traders who exacerbate downward price momentum or are negatively viewed by the market. Instead, our results complement studies that suggest that naked short sellers promote efficient markets by providing liquidity in up markets, risk-bearing, and selling stocks they view as overpriced.[173]

Thus, short selling is normally good from a behavioral viewpoint, because it allows contrarians to moderate speculative bubbles. Indeed, one reason why the property market seems to be so prone to bubbles is that there are no convenient short selling opportunities. Furthermore, short selling may be motivated by reasons other than expectations of price declines: such strategies as convertible bond arbitrage, hedging long positions with swaps or restricted stock, and statistical arbitrage all depend on short selling.

There is a more plausible argument for restricting short selling during abnormal market conditions. It is sometimes claimed that extreme conditions give rise to "disorderly" markets that become subject to "incoherence."[174] Such phenomena may be rational on the individual level if they are caused by the systemic consequences of widespread

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171. *See* Rick Casterline, *Berkshire Behind the Scenes: Part 5,* MOTLEY FOOL (June 1, 2006), http://www.fool.com/investing/value/2006/06/01/berkshire-behind-the-scenes-part-5.aspx.

172. "Naked short selling" refers to the practice of selling a stock without borrowing it first. It may more likely create settlement problems than "covered short selling", but that is mainly a technical concern.

173. Thomas J. Boulton & Marcus V. Braga-Alves, *Naked Short Selling and Market Returns,* 38 J. PORTFOLIO MGMT. 3, 133 (2012), *available at* http://ssrn.com/abstract=1373813.

174. Ian W. Marsh & Richard G. Payne, *Banning Short Sales and Market Quality: The U.K.'s Experience* 2 (July 20, 2010), *available at* http://ssrn.com/abstract=1645847 (quoting Sir Callum McCarthy and Hector Sants, the then Chairman and Chief Executive of the FSA, respectively).

selling sprees giving rise to liquidity problems and unexpected margin calls, forcing investors to sell more and depressing prices further. On the other hand, they may be reinforced by psychological factors, which can give rise to herd behavior and panics.

Whatever the causes of disorderly markets, even this justification for short selling restrictions has been empirically called into question. One study using global data found that restrictions were generally detrimental to liquidity and failed to lift stock prices.[175] In the U.S., another study concluded that the SEC ban on short sales in 2008–09 may have inflated financial stock values by 10–12%,[176] but this has been challenged by those who argue that the price increase was likely due to the Troubled Asset Relief Program (TARP), which was announced alongside the short selling ban.[177] In fact, it was later found that there was no positive price effect in stocks that could not be sold short.[178]

In the UK, Marsh and Payne investigated the effects of the ban on short sales of financial firms in 2008–09, using information on the full order book for these stocks immediately before and after the ban.[179] The authors found that the ban did not stop the aggressive sell-off of the financials as compared with non-financials, but it did greatly reduce their trading volume and order book liquidity.[180] Thus, market quality for the financials deteriorated further, making trading in financial stocks more expensive and less attractive.[181]

It seems, then, that if there are good reasons for markets to crash, they crash with or without short sellers. Only in exceptional situations can short selling make things worse, but it is difficult to know when that is the case. Price overshooting is generally caused by a different set of factors, including liquidity problems among investors and uncertainty caused by lack of transparency. Note also that the lack of short selling opportunities in the housing market has not prevented an ongoing price

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175. Beber & Pagano, *supra* note 167, at 1–2.

176. Lawrence Harris, Ethan Namvar & Blake Phillips, Price Inflation and Wealth Transfer During the 2008 SEC Short-Sale Ban (June 18, 2009) (unpublished manuscript), *available at* http://ssrn.com/abstract=1364390.

177. Ekkehart Boehmer, Charles M. Jones & Xiaoyan Zhang, Shackling Short Sellers: The 2008 Shorting Ban (Dec. 23, 2011) (unpublished manuscript), *available at* http://ssrn.com/abstract=1412844.

178. *Id.*

179. Marsh & Payne, *supra* note 174, at 3.

180. *Id.*

181. *Id.*

decline; the adjustment process may take longer, but that too has its costs in terms of longer lasting uncertainty.

Finance theory's empirical support for short selling has led some commentators to seek alternative explanations for the existence of short selling regulations. Sirri argues that the sudden increase in short selling restrictions in 2008–09 was more due to regulatory politics than sound economics.[182] The SEC—which is financially dependent on Congress and whose Commissioners are presidential appointees confirmed by Congress—was under significant political pressure after the failure of major financial firms and the exposing of Bernie Madoff's Ponzi scheme, and had to be seen as "doing something."[183] Duncan Niederaur, head of NYSE Euronext, even stated that while "there was no economic benefit" from having the uptick rule, "it would go a long way to adding confidence."[184] If the uptick rule truly does increase market confidence, then perhaps that can be called a behavioral argument in favor of the uptick rule!

From a behavioral perspective, attacks on short selling may be understood as a type of scapegoating, rooted in the self-serving attribution bias. People are keen to find an explanation and someone to blame. Moreover, it may seem unfair that someone profits when others lose.[185]

3. Other Possibilities

It is interesting that Robert Shiller, one of the foremost critics of naïve believers in market efficiency, nevertheless supports freer financial markets. The primary reason is that price bubbles are so complex and changing that we cannot understand how to deal with them

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182. Sirri, *supra* note 165, at 531–36.

183. *Id.*

184. *Id.* at 533. The SEC was clearly under pressure from the administration too. *Id.* at 536 ("In an interview he gave to *The Washington Post* less than a month before he left the SEC, Chairman Cox stated that the biggest mistake of his tenure was agreeing to the September 2008 short selling ban on financial firms. Cox went on to state that 'he had been under intense pressure from Treasury Secretary Henry M. Paulson Jr. and Fed Chairman Ben S. Bernanke to take this action and did so reluctantly.'").

185. David Hirshleifer, *Psychological Bias as a Driver of Financial Regulation,* 14 EUR. FIN. MGMT. 856, 861 (2008) ("Speculators are favourite targets for vilification after market declines. Hard times also trigger vilification of lenders as greedy exploiters, also leading to demands for regulation.").

effectively. Interfering with markets is likely to work poorly in most cases, and it will have significant costs and unintended consequences:

> Unfortunately, the nature of the bubbles is sufficiently complex and changing that we can never expect to document the particular role of any given policy in bringing about our objective long-term economic welfare. Policies that interfere with markets by shutting down or limiting them, although under some very specific circumstances apparently useful, probably should not be high on our list of solutions to the problems caused by speculative bubbles. Speculative markets perform critical resource-allocation functions . . . and any interference with markets to tame bubbles interferes with these functions as well.[186]

Therefore, instead of increasing regulation, "most of the thrust of our national policies to deal with speculative bubbles should take the form of facilitating more free trade, as well as greater opportunities for people to take positions in more and freer markets".[187] This suggests other policies, such as setting up new markets that facilitate better pricing. One example is the "S&P 500 Strips" concept that consists of "a market for the future annual total dividends of the aggregate S&P 500 firms for each year in the future up to some distant horizon."[188] Such a market would provide an incentive for analysts to focus on forecasting dividends, which is more reflective of fundamental strength than market prices. Shiller has also proposed the creation of a derivatives market for home prices to improve pricing efficiency.[189]

Perhaps the biggest challenge is helping people adopt habits that reduce the harmful effects of speculative bubbles. Shiller advocates better diversification, more personal saving, and hedging of personal risks.[190] Some of these might be achieved voluntarily or through light-touch regulations that help people make better choices without compulsion.[191] For example, one could increase savings by promoting

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186. SHILLER, *supra* note 50, at 229–30.

187. *Id.* at 230.

188. *Id.* at 229 (explaining Michael J. Brennan, *Stripping the S&P 500 Index,* 54 FIN. ANALYSTS J. 12 (1998).

189. Robert J. Shiller, *Derivatives Markets for Home Prices,* (Nat'l Bureau of Econ. Research, Working Paper No. 13,962, 2008), *available at* http://www.nber.org/papers/w13962.pdf.

190. SHILLER, *supra* note 50, at 217–20, 228–29.

191. *See* THALER & SUNSTEIN, *supra* note 7, at 5–6 (proposing such light-tough policies).

schemes such as the Save More Tomorrow (SMarT) program.[192] Diversifying beyond national equity markets could be encouraged by education, advice, and better access to different markets. Hedging of personal economic risks would only require marginally more creative thinking by financial advisors and other professionals.[193]

C. INNOVATION AND REGULATION

Undoubtedly, many problems have been caused by imprudent innovation in financial markets.[194] Indeed, some prominent economists have questioned the value of financial innovation itself.[195] What does this imply for regulation? Innovation and its adverse effects are to some extent an inherent aspect of the trial and error discovery process of market economics, but psychological factors such as overconfidence and overoptimism may exacerbate the harm. It may be that regulatory intervention is needed to restrain socially harmful innovation.

However, there are at least three reasons why the issue is more complicated. Firstly, some problems of financial innovation may be mitigated through light-touch regulations along behavioral lines.[196] Secondly, imprudent innovations may be encouraged by lack of personal responsibility for failures, a situation that has arguably been worsened by the replacement of market-based discipline with increased public supervision.[197] Thirdly and most importantly, it may be that problematic innovation is often driven by faulty overregulation.

This last point requires a closer look. It has been claimed that a major impulse for financial innovation is the desire to avoid taxes and regulation.[198] Some of that activity may be beneficial, but it causes a

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192. Thaler & Benartzi, *supra* note 58, at S164.

193. *See* ROBERT J. SHILLER, THE NEW FINANCIAL ORDER: RISK IN THE 21ST CENTURY 1, 2, 4–5 (2004) (proposing ways to manage personal risks).

194. Raghuram G. Rajan, *Has Financial Development Made the World Riskier?*, 2005 FED. RES. BANK OF KAN. CITY PROC. 313 (arguing that financial innovation has increased risks); Llewellyn, *supra* note 145 (providing examples of problematic innovations).

195. Simon Johnson & James Kwak, *Is Financial Innovation Good for the Economy?*, 12 INNOVATION POLICY AND THE ECONOMY 1 (2012).

196. *See supra* Part III.

197. *See supra* Part V.A.

198. Merton H. Miller, *Financial Innovation: The Last Twenty Years and the Next,* 21 J. FIN. & QUANTITATIVE ANALYSIS 459, 461 (1986). *See also* Frank Partnoy,

cat-and-mouse game whereby substantial resources are wasted and the regulatory environment is in a constant state of flux. Recurring problems in the banking sector serve as prominent examples and suggest that overregulation tends to cause unintended consequences in the form of dubious innovations.

Consider bank capital regulation. For years, experts have argued that capital adequacy regulation based on the Basel Capital Accords has been a failure.[199] Although well-intentioned, it has in practice stifled the development of risk management by preventing valuable competition in risk management systems.[200] Moreover, instead of producing a sensible system, the Basel rules have given banks an increasingly lengthy rulebook that lacks basic principles and common sense. This has led to a compliance culture, which is especially problematic when the rules are flawed. And flawed they are: Basel II allows banks to use their own risk models based on the Value at Risk (VaR) concept—a defective risk measure that has been discredited for quite some time for failing to include "tail risks".[201] A "tail risk" is a form of portfolio risk that arises when the possibility that an investment will move more than three standard deviations from the mean is greater than what is shown by a normal distribution.[202] The current regulatory system, combined with imperfect product competition and the too big to fail problem, has fostered a market in complex products such as subprime loans and credit derivatives. These markets have large tail risks, and hence "have the appearance of producing very high alphas (high returns for low risk), so managers have an incentive to load up on them. Every once in a while, however, they will blow up."[203]

Financial Derivatives and the Costs of Regulatory Arbitrage, 22 J. CORP. L. 211, 227–28 (1997) (providing examples of "regulatory arbitrage" activity).

199. *See, e.g.*, Kevin Dowd, *The Failure of Capital Adequacy Regulation, in* VERDICT ON THE CRASH, *supra* note 74, at 73 [hereinafter Dowd, *Failure of Capital Adequacy*]; Imad A. Moosa, *Basel II as a Casualty of the Global Financial Crisis,* 11 J. BANKING REG. 95, 111 (2010); Dowd et al., *Capital Inadequacies*, *supra* note 151, at 1.

200. Dowd, *Failure of Capital Adequacy, supra* note 199 at 77; *see also* Dowd et al., *Capital Inadequacies*, *supra* note 151, at 10–18 (describing financial risk management and the distortions created by Basel rules).

201. Philippe Artzner et al., *Coherent Measures of Risk,* 9 MATHEMATICAL FIN. 203, 217–18 (1999); TURNER REVIEW, *supra* note 76, at 44–45.

202. *See Fat-tail Attraction,* THE ECONOMIST, Mar. 24, 2011, http://www.economist.com/node/18443412.

203. Rajan, *supra* note 194, at 337.

Imperfect banking regulation may be the driving force of dubious financial innovations.[204] Instead of enhancing stability, the risk-based capital regulation of Basel II has created a pro-cyclical system, which forces banks to increase their lending just at the point where the risk of a systematic downturn is greatest, making crises more likely and more severe.[205] Moreover, it has not mitigated bounded rationality, but has only increased overoptimism and over-confidence:

> The models first of all hide the underlying risks but, also, the encouragement to use quantitative models gives management false comfort that the risks of complex balance sheets, which are beyond anybody's understanding, can be modelled in a precise way. Management and shareholders therefore become more comfortable than they otherwise would with complex financial exposures.[206]

The recently agreed upon Basel III framework will arguably introduce modest improvements, but the overall philosophy remains the same, and thus the fundamental problems are not addressed.[207]

Some response is needed. It may well be that stricter rules would be better. For example, so-called "narrow banking" rules which would separate demand deposits and the payment system from high finance, risky derivatives, and opaque off-balance sheet investments may be beneficial.[208] The principal argument for narrow banking rests on the inherent instability of demand deposits, the perverse incentives created

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204. *See* Dowd et al., *Capital Inadequacies*, *supra* note 151, at 23–24 (arguing this with examples).

205. TURNER REVIEW, *supra* note 76, at 23, box 1A.

206. Dowd, *Failure of Capital Adequacy, supra* note 199, at 78.

207. Dowd et al., *Capital Inadequacies*, *supra* note 151, at 29.

208. Early proposals include LOWELL L. BRYAN, BREAKING UP THE BANK: RETHINKING AN INDUSTRY UNDER SIEGE (1988) and ROBERT E. LITAN, WHAT SHOULD BANKS DO? (1987); one notable, recent contribution is JOHN KAY, CTR. FOR THE STUDY OF FIN. INNOVATION, NARROW BANKING: THE REFORM OF BANKING REGULATION (Sept. 15, 2009), http://www.johnkay.com/wp-content/uploads/2009/12/JK-Narrow-Banking.pdf. The current proposals in the U.S. (Volcker Rule) and the UK (retail ring-fencing) embody some narrow banking elements. For a critical assessment, see Julian T.S. Chow & Jay Surti, *Making Banks Safer: Can Volcker and Vickers Do It?,* (Int'l Monetary Fund Working Paper No. 11/236, 2011), *available at* http://www.imf.org/external/pubs/ft/wp/2011/wp11236.pdf.

by deposit insurance, and the large social costs of bailing out banks.[209] However, narrow banking is unlikely to be a perfect solution.[210]

The argument here is that future regulation should focus on increasing market-based oversight and reducing complex legal rules that financial institutions can rig in their favor by way of socially wasteful innovation. We should not underestimate the ability of market participants to come up with novel institutional solutions to deal with the abuse of innovation when they are empowered and charged with the responsibility of doing so. Indeed, "stock exchanges, professional standards, industry codes of conduct and rating agencies all exist to help, in their different ways, overcome problems caused by information asymmetries and the incentives to reckless behaviour that limited liability can provide."[211] In addition, regulatory intervention in market-based mechanisms may create perverse incentives, as the history of credit ratings demonstrates.[212]

V. BEHAVIORAL BUREAUCRATS: PSYCHOLOGY AND REGULATORY FAILURE

Regulators and politicians are not free from behavioral biases.[213] This is not an automatic reason to rule out regulation, but it causes us to rethink the appropriate role of regulatory intervention.[214] So far, the implications of behavioral theory for regulators and legislators have attracted limited attention. According to one survey of articles in behavioral economics, more than 20% made some sort of policy

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209. *See* Bert Ely, *The Narrow Bank: A Flawed Response to the Failings of Federal Deposit Insurance*, 14 REGULATION 44, 45 (1991) (criticizing narrow banking proposals for failing to tackle the right issues and potentially worsening the incentive problems).

210. *Id.*

211. Philip Booth, *More Regulation, Less Regulation or Better Regulation?, in* VERDICT ON THE CRASH, *supra* note 73, at 157, 161.

212. Several commentators hold that the incentives of credit ratings agencies became distorted when the ratings—originally a purely market-based mechanism—began to be used for regulatory purposes. *See, e.g.*, Frank Partnoy, *The Siskel and Ebert of Financial Markets?: Two Thumbs Down for the Credit Rating Agencies,* 77 WASH. U. L.Q. 619, 623–24 (1999); Timothy E. Lynch, *Deeply and Persistently Conflicted: Credit Rating Agencies in the Current Regulatory Environment,* 59 CASE W. RES. L. REV. 227, 2 (2009); Alan D. Morrison, *Ratings Agencies, Regulation and Financial Market Stability, in* VERDICT ON THE CRASH, *supra* note 73, at 117.

213. Jolls, et al., *Behavioral Approach*, *supra* note 2, at 1543–44.

214. *Id.*

recommendation, but of these, 95.5% contained no analysis whatsoever of the cognitive abilities of policymakers.[215]

It is widely acknowledged that, just as markets may fail, regulators may fail too.[216] Regulatory rule-makers suffer from informational problems as well as incentive problems; they frequently lack sufficient skills; regulation is prone to rent-seeking behavior and capture of regulation by regulatees; the costs of regulation may be higher than the benefits, and many of the costs are hidden or indirect; legal rules suffer from gaps and ambiguities; regulation tends to lag behind, especially when the environment is rapidly changing; and regulation often fails to achieve its purpose, as regulatees find innovate ways to avoid the effect of regulation.[217] The list could go on.

What follows is a consideration of the impact of psychology on regulation and legislation, and how that should be borne in mind when designing regulation and regulatory institutions. A difficult question is to what extent psychology contributes to certain observed phenomena. As will be seen, ordinarily public choice theory and behavioral economics may be seen as complementary explanations. Not only do both public choice and behavioral theory highlight reasons for regulatory failure, but the effects predicted by these theories may also be mutually reinforcing.[218] For example, "cognitive biases may encourage regulators to equate self-interest and the public interest."[219] However, we cannot isolate one effect from the other, so the significance of the difference factors remains uncertain.

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215. Niclas Berggren, *Time for Behavioral Political Economy? An Analysis of Articles in Behavioral Economics,* 25 REV. AUSTRIAN ECON. 199, 199 (2012); *see generally* Choi and Pritchard, *supra* note 5 (seminal paper that takes the matter seriously). *See also* Brett McDonnell & Daniel Schwarcz, *Adaptation & Resiliency in Legal Systems: Regulatory Contrarians,* 89 N.C. L. REV. 1629, 1639–42 (2011) (citing similar literature).

216. *See supra* note 14 and the references cited therein.

217. *Id.* On gaps and ambiguities in law, see Katharina Pistor & Chenggang Xu, *Incomplete Law*, 35 N.Y.U. J. INT'L. L. & POL. 931, 933 (2003).

218. *See* Hirshleifer, *supra* note 179, at 858 (arguing that some social processes amplify psychological biases).

219. Choi and Pritchard, *supra* note 5, at 41.

A. REGULATORY FAILURE: BEHAVIORAL PERSPECTIVES

To begin, behavioral theory implies that regulation tends to be reactive instead of proactive. Rule makers suffer from availability and hindsight biases, causing undue importance to be given to recent and immediate information. One result of these biases is that large scandals tend to be interpreted under the assumption that abuse is the norm.[220] With hindsight, all crises seem to have been inevitable, and regulatory intervention appears indispensable. This will be reinforced by political pressure, as politicians and regulatory authorities feel that they need to be seen "doing something" about the problems. The pressure is even greater if legislators and regulators can blame some specific group and direct attention away from misguided regulations.[221]

If regulators overreact to crises, they are also likely to err on the side of omission during good times; thus a pro-cyclical regulatory tendency is generated.[222] Indeed, it seems that overoptimism, availability bias, and the tendency to underestimate small probabilities imply that regulators and legislators tend to ignore real problems that have not yet surfaced. An example is the failure of most experts to foresee problems caused by the abuse of complex derivative instruments, or the abuse of credit ratings. Indeed, some warned about these problems, but the warnings were not heeded by regulators any more than by most market participants.

The joint effect of these biases is reactive regulation, which addresses specific issues that are in fact unlikely to reappear in the same form, as market participants learn from the past and adapt their behavior. Thus, regulation often fails to address general problems

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220. *Id.* at 25 (arguing this with examples); Hirshleifer, *supra* note 185, at 858 ("[R]egulatory debates are influenced heavily by extreme events, and by heart-rending personal stories.").

221. Hirshleifer, *supra* note 185, at 861.

> Economic and stock market downturns increase pressure for regulation. . . . The psychological attraction approach offers a simple explanation – the urge to find someone to blame. The possibility that a bubble could be a *spontaneous* result of investor biases and social amplification processes is not vivid, simple, or repeatable. Chance and personal incompetence are also not satisfying as explanations for personal losses. . . . Explanations based on villainy . . . also have the appealing feature that they readily suggest simple cures – through regulation.

Id.

222. *See* Amitai Aviram, *Counter-Cyclical Enforcement of Corporate Law,* 25 YALE J. ON REG. 1 (2008) (discussing this tendency in corporate law related to fraud); JACK M. GUTTENTAG & RICHARD HERRING, DISASTER MYOPIA IN INTERNATIONAL BANKING (1986) (making the hypothesis of "disaster myopia" in international banking).

proactively by improving the system as a whole. A consequence of this tendency is the accumulation of a patchwork set of rules lacking a principled basis. From the viewpoint of boundedly rational market participants, this is especially problematic, because it becomes difficult to understand the regulatory system, and investors may choose to rely on regulators for protection when in fact some areas of the market are not so regulated.

It is difficult to empirically assess the extent to which the problems identified here are realized in practice. After the recent financial crisis it appeared as though lawmakers were trying to renew the entire regulatory landscape, but a closer look shows that these changes might have only been an attempt to impress the electorate while keeping fundamentals the same.[223] Of course, it may be argued that the fundamentals should remain as before; the point is that the impression of major reform may be illusory.

Secondly, behavioral theory suggests a tendency to overregulate and a failure to rectify mistakes. One reason is that regulators and politicians are subject to overconfidence bias, which may lead them to overestimate their understanding of the issues and their ability to resolve them.[224] Overconfidence seems to be especially common among experts, which implies that regulators are likely to be especially prone to it.[225]

Regulators are also subject to confirmation bias, which implies that evidence supporting existing rules will tend to be highlighted, while negative evidence will easily be ignored. Confirmation bias is likely to be especially significant in relation to financial markets regulation, because it "will be more pronounced if the evidence is more complex and subject to conflict inferences, a fair characterization of most regulatory problems in the securities markets."[226]

Overconfidence and confirmation bias may mutually strengthen each other, and both are significant obstacles to sound regulatory reform. Self-serving bias may augment this obstacle, as rule makers

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223. For example, it has been argued that the grandiose 2300-page Dodd-Frank Wall Street Reform and Consumer Protection Act was heavily influenced and controlled by the banking lobby. *See* Matt Taibbi, *How Wall Street Killed Financial Reform*, ROLLING STONE, May 24, 2012, *available at* http://www.rollingstone.com/politics/news/how-wall-street-killed-financial-reform-20120510.

224. Choi and Pritchard, *supra* note 5, at 28–29.

225. Griffin and Tversky, *supra* note 37, at 427–30; Rabin, *supra* note 29, at 31–32.

226. Choi and Pritchard, *supra* note 5, at 30.

overestimate their role in managing crises (when in reality, a crisis may have been resolved naturally) and underestimate their role in causing crises or making them worse.

Framing effects may have a similar consequence. Loss aversion will lead rule-makers to give more importance to potential crises than to the benefits of more lightly regulated regimes. The opportunity cost bias implies that explicit and measurable costs will be given prominence at the expense of hidden, indirect and long-term costs of overregulation. Status quo bias will reinforce the tendency of regulators to stick to existing rules unless their criticism is overwhelming.

Also note that because financial rule makers are not always rational, even well-intentioned regulators tend to come up with imperfect solutions. In particular, regulations tend to suffer from "bounded search" and "tunnel vision," which lead to a lack of creative thinking.[227] For example, the SEC has tended to treat disclosure rules as a cure-all regulatory strategy despite the fact that—especially in light of behavioral economics—it may not be so effective, at least if the focus is merely on large amounts of disclosure.[228] The persistent failure of banking regulation is another example. Bounded search and tunnel vision again imply that regulatory reform tends to be limited to tinkering with the details instead of a genuine rethinking of regulatory principles.

There may, of course, be good reasons for both overregulation and the failure to remedy past mistakes. Given the imperfection of all rulemaking, it is sometimes better to err on the side of overregulation rather than underregulation, at least if significant risks are present. The failure to reform an imperfect system may also be motivated by regulatory switching costs (i.e., the costs to both regulators and regulatees resulting from changing the rules of the game), as well as the reasonable suspicion that a different rulebook might not lead to much improvement. On the other hand, awareness of these issues may reinforce the biases discussed earlier.

B. HIDDEN BEHAVIORAL COSTS OF REGULATION

The behavioral theory also shows that in addition to the explicit costs of compliance, regulation may also give rise to hidden costs. One such hidden cost is the consequent reduction in carefulness and

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227. *Id.* at 21–24 (arguing this with examples).

228. *Id.*

monitoring by market participants themselves; carefulness here includes the attempt to mitigate the effects of one's cognitive imperfections.

It is very difficult to quantify this effect, but its existence should not be ignored. Firstly, protective regulatory schemes may create an illusion of security and safety, thereby encouraging overoptimism bias among market participants. Regulation may lead investors to rely too much on public protection, and their attempts to make wise choices—and overcome their own behavioral biases—are weakened as a result.[229] The problem may be greatest precisely after crises, as legislators and regulators want to send the signal that they are in charge, they know how to deal with the issues, and they will in fact do so effectively. Paradoxically, the more successfully they transmit this message, the more they inhibit the necessary learning process and behavioral adaptation that ought to take place after a crisis. People may want to trust in the ability of public authorities to protect their interests, but blind trust in reforms is frequently misplaced.

Secondly, extensive regulation tends to give rise to the accumulation of complex rulebooks that lack consistency and clear principles. The consequence for market participants is that it becomes harder to understand the rules, and therefore more difficult to personally assess the limits and defects of the regulatory system. Thus blind reliance and dependency are inadvertently promoted. That can be especially harmful when, in reality, some areas of financial markets are less regulated and market participants would be advised to tread carefully.

Complexity and high regulatory costs may also give rise to a different kind of hidden cost. As the regulatory burden becomes significant, regulatory subjects may resort to a compliance culture, only fulfilling the letter of the regulations and ignoring the underlying principles.[230] Especially when regulatees feel they are being treated unfairly, they will tend to respond with spiteful behavior, thereby making the job of regulatory authorities as difficult as possible. In the worst-case scenario, a vicious circle is created: as regulation is tightened

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229. *Id.* at 6–7. *See also* Henry T. C. Hu, *Faith and Magic: Investor Beliefs and Government Neutrality,* 78 TEX. L. REV. 777, 780–81 (2000).

230. *See* EUGENE BARDACH & ROBERT A. KAGAN, GOING BY THE BOOK: THE PROBLEM OF REGULATORY UNREASONABLENESS 20 (1982) (describing compliance culture); IAN AYRES & JOHN BRAITHWAITE, RESPONSIVE REGULATION: TRANSCENDING THE DEREGULATION DEBATE 108 (1992) (providing examples of compliance culture and possible strategies to reduce it).

and complicated, the compliance culture is deepened, and all market participants become increasingly dependent on regulators to protect their interests. It would seem that the better option is to find a set of simple and principled rules that are perceived as fair, that punish abuse harshly, and that are primarily enforced by market participants.[231]

C. INSTITUTIONAL SOLUTIONS

Behavioral theory thus suggests that there tends to be too many rules based on reactive and overreaching regulation, and past regulatory mistakes are only rarely corrected. This phenomenon is quite natural and there is no doubt that we all suffer from similar biases in our daily life. The point is not to criticize regulators and legislators for being human, but to investigate what kind of regulatory approaches are appropriate and how regulatory quality could be improved given the imperfections of human beings. Regulatory quality is a broad topic that can only be briefly discussed here. There are numerous ways in which regulatory quality can be improved, including better regulatory oversight, training in regulatory quality skills, policy coherence, evaluation, simplification, and consultation.[232]

More specifically in the context of behavioral economics, Choi and Pritchard point out, using the SEC as an example, that there are some potentially corrective mechanisms in place at regulatory authorities.[233] For example, hierarchical review of staff proposals by commissioners may reduce bias caused by overconfidence and overoptimism.[234] Judicial review and political oversight may have a similar effect.[235] One can see similar processes in the context of legislation: political review of draft legislation will improve the scrutiny of proposals, which as a result have to be better defended. The role of outside experts in the drafting process should also improve the quality of legislation.[236] However, the overall effect is unclear. Reviewers and experts are subject to similar psychological biases, and their involvement will entail unwanted costs,

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231. *See* Partnoy, *supra* note 198, at 246–54 (preferring "bottom-up" common law principles instead of "top-down" regulation to deal with the regulatory arbitrage problems of financial derivatives).

232. *See, e.g.*, OECD, INDICATORS OF REGULATORY MANAGEMENT SYSTEMS: 2009 REPORT (2009), *available at* http://www.oecd.org/dataoecd/44/37/44294427.pdf.

233. Choi & Pritchard, *supra* note 5, at 36–40.

234. *Id.*

235. *Id.*

236. *Id.*

so it is certainly not correct to conclude that these additional procedures should be increased without measure. Moreover, complex procedures will make it more difficult to challenge the status quo, and the influence of political pressures may exacerbate the reactive nature of regulation.

McDonnell and Schwarcz advance a related idea, which they call *regulatory contrarians*.[237] They advocate the institutionalization of roles whose function is to challenge the status quo of regulation by identifying its weaknesses.[238] According to these authors, some government bodies already perform this function, but it would be possible to have more of them. However, regulatory contrarians mainly help to identify weaknesses in existing rules, not so much to reduce reactive regulation. Moreover, an important regulatory contrarian role is already played by (some) academics.

Another way of improving the quality of regulation is the use of regulatory impact assessments (RIAs) or cost-benefit analyses (CBAs). RIAs are a way of critically assessing the positive and negative effects of proposed or existing regulations and their non-regulatory alternatives. In principle, impact assessments should help reduce the harmful effects of various psychological biases by forcing law makers to face the facts and consider different options.

In practice, things are not so simple. In addition to being expensive to produce, RIAs are usually done ex ante—before the regulation is implemented—when there are few hard facts to rely on.[239] As a result, RIAs tend to be highly speculative, and biases such as salience and overoptimism are likely to reduce the quality of the analysis further, especially if those making the RIA are favorable to the proposed regulation.[240] Another challenge is that if the RIA concludes against the proposed regulation, that analysis may simply be ignored: "Viewed objectively, these efforts have not been a success. The RIAs, and

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237. McDonnell & Schwarcz, *supra* note 215.

238. *Id.*

239. *See* THE IMPACT OF LEGISLATION: A CRITICAL ANALYSIS OF EX ANTE EVALUATION (Jonathan Verschuuren ed. 2009) (providing critical assessments of ex ante evaluation of legislation).

240. *See, e.g.*, EUR. COMMISSION, IMPACT ASSESSMENT BOARD REPORT FOR THE YEAR 2007 (2008), *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008SC0120:EN:NOT ("In a number of cases, there was a bias in the definition of options towards the preferred option, often leading to an analysis of options that was too much focussed on the preferred option while other options should have been explored in greater detail.").

similar efforts, often are no more than form-filling exercises in support of a government department's preferred legalistic approach, rather than genuine attempts to identify the most efficient regulation."[241]

These problems might be mitigated through ex post—after the regulation is implemented—impact assessments. Regulation frequently has unintended consequences, and ex post analysis helps to critically evaluate the success of past action. Indeed, ex post impact assessment of regulation is frequently conducted by academics in law and economics. However, one should not expect too much. Impact assessments are important, but even ex post analysis remains subject to biases such as salience and the confirmation bias (ideology plays a role, too); the causal connections are subject to dispute even after the fact. Besides, there are practical difficulties in trying to change the rules through ex post assessments: once the issue is settled, political interest tends to diminish, and the prospect of further switching costs reduces the attractiveness of changing the status quo. One proposal worth developing further is to "'sunset' (end) the rule adoption after a number of years, so that its merits would need to be reargued, in part using the data generated from the initial rule adoption."[242]

D. PRINCIPLES

Overall, three general conclusions may be inferred. Firstly, there is reason to be skeptical of regulatory intervention. This means favoring general principles instead of complex regulations. Crises should not lead to sudden changes; instead it is necessary to study the ways in which existing regulations have not only failed to prevent some problems, but have also contributed to them. Moreover, regulatory authorities should be given fewer discretionary powers, and their delegated rulemaking powers should be limited.[243]

Secondly, regulatory intervention should—despite recent criticism—generally prefer *light-touch regulations*, which influence the decisions of market participants without unduly restricting their choices.[244] This is because behaviorally inspired light-touch regulations are less likely to create major costs, even when they are imperfect.[245]

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241. CENTO VELJANOVSKI, THE ECONOMICS OF LAW 165 (2d ed. 2006).

242. Chester S. Spatt, *Complexity of Regulation*, 3 HARV. BUS. L. REV. ONLINE 1, 7 (2012), http://www.hblr.org/?p=2299.

243. Booth, *supra* note 211, at 165, 167, 169.

244. *See* Choi and Pritchard, *supra* note 5, at 64–69.

245. *See supra* Part III.

Some possibilities include default rules, psychologically designed disclosure, and cooling-off periods.[246] There is also the possibility of educating individuals, not just on finance, but also on typical behavioral biases and how to moderate them.[247] This need not involve regulatory authorities; the market is already flooded with information on behavioral economics, and some financial intermediaries have an incentive to educate their clients in order to boost client loyalty.

Thirdly, the behavioral biases of regulators suggest that regulatory competition should be fostered, because "while market biases continually face the pressure of competition, behavioral biases among regulators may go unchecked if regulators enjoy monopoly authority."[248] Thus the behavioral view questions the trend towards global regulation. One option is to reconsider the possibilities of self-regulation and enforced self-regulation.[249] Another option is to find ways of empowering market participants, possibly through well-designed disclosure rules.[250]

VI. LEARNING AND THE VALUE OF SIMPLICITY

The value of general principles and simplicity has already been mentioned in various ways. This part rounds up the discussion by

246. *See supra* Part III.

247. However, there are obviously limits to what education can achieve. *See, e.g.*, Lauren E. Willis, *Against Financial-Literacy Education*, 94 IOWA L. REV. 197, 211–12 (2008) (arguing that financial-literary education may be ineffective in a rapidly changing marketplace, and may increase false confidence and deflect calls for market regulation).

248. Choi and Pritchard, *supra* note 5, at 43.

249. *See generally* Anthony Ogus, *Self-Regulation, in* 5 ENCYCLOPEDIA OF LAW AND ECONOMICS, THE ECONOMICS OF CRIME AND LITIGATION 587 (Boudewijn Bouckaert & Gerrit De Geest eds. 2000) (discussing options for self-regulation); ROBERT BALDWIN & MARTIN CAVE, UNDERSTANDING REGULATION: THEORY, STRATEGY AND PRACTICE 125-137 (1999) (critically discussing self-regulation); Paul G. Mahoney, *The Exchange As Regulator,* 83 VA. L. REV. 1453 (1997) (describing exchanges as self-regulatory mechanisms).

250. In the context of securities regulation, *see* Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation,* 107 YALE L.J. 2359 (1998). In many ways disclosure regulation is a type of investor-empowering regulation. *See also* P.M. Booth, *'Freedom with Publicity'—The Actuarial Profession and United Kingdom Insurance Regulation from 1844 to 1945,* 2 ANNALS ACTUARIAL SCI. 115 (2007) (discussing the "freedom with publicity" regime for insurance markets in late 19th and early 20th century Britain).

highlighting some further behavioral arguments that favor a system of simple rules over complex regulatory regimes.[251] As a former Chief Economist of the SEC has pointed out, much of complexity of modern finance is a consequence of the complexity of regulation.[252]

Note that in any case it is neither conceivable nor necessary to create a perfect regulatory system. Many problems in existing markets have been caused by flawed regulations and unsound monetary policy, and it is difficult to say how markets would have evolved but for the distorted incentives created by existing rules. There are behavioral anomalies, but their practical importance in different contexts is less clear. *Behavioral perfectionism* in financial regulation could become a nightmare, because it might lead to major implementation costs and unintended consequences. Besides, "many of the anomalies discovered are beyond the power of regulation—public or private—to affect."[253]

A. HABITS, LEARNING, AND RESPONSIBILITY

We should not ignore the importance of good habits—including moral habits or virtues—that enable people to make good choices.[254] The tendency in regulatory debates is to focus on external rules, because the focus is on what public authorities can do to solve social problems. There is a danger of forgetting that personal virtues such as prudence—the perfected ability of free and rational persons to make wise practical decisions[255]—cannot be replaced by regulation. Good habits must be

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251. *See, e.g.*, RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD (1995) (defending the virtues of simple legal rules).

252. Spatt, *supra* note 242, at 1 ("While I recognize that to some degree complexity in financial structure breeds complexity in regulation, often the causality is reversed. Complexity in regulation leads to complexity in financial structures and systems, particularly in light of the efforts of market participants to mitigate the costs and complications induced by regulation, including attempts to engage in regulatory arbitrage.").

253. Choi and Pritchard, *supra* note 5, at 67.

254. *See* Samuel Gregg, *Moral Failure: Borrowing, Lending and the Financial Crisis, in* VERDICT ON THE CRASH, *supra* note 74, at 145–53 [hereinafter Gregg, *Moral Failure*] (arguing that certain problems in financial crisis have been due to moral failure); Samuel Gregg, Research Director, Acton Institute, Address at Thomas More Institute: Credit Crunch, Character Crisis (Oct. 22, 2008), *available at* http://thomasmoreinstitute.org.uk/papers/credit-crunch-character-crisis/.

255. On the classical notion of prudence, *see* ARISTOTLE, THE NICOMACHEAN ETHICS (D. Ross trans., J. L. Ackrill & J. O. Urmson eds., Oxford Univ. Press 1980); JOSEF PIEPER, THE FOUR CARDINAL VIRTUES (Richard Winston et al. trans. 1966).

learnt in life, and an important role in this learning process is played by families, schools, churches and, quite simply, the freedom of making personal choices and being responsible for the consequences.

During financial crises, the emphasis tends to be on the failure of regulation, and especially on the failure of public authorities to protect individuals from bad choices. This emphasis can go too far if it ignores the role of personal responsibility for free choices, including morally wrong choices. As Samuel Gregg has emphasized, analysts of financial crises have heavily criticized investment banks, often rightly, but "rather fewer moral critiques have been made of the behaviour of individuals who, for example, misrepresented—i.e., lied—about their assets, income and liabilities in order to obtain loans and mortgages."[256]

One implication is that personal responsibility needs to be given more importance. Market participants should be allowed to make some mistakes and learn from them. But it is even more important that they are made aware of their responsibility for the choices they make. The danger of extensive regulatory schemes is that they may reduce investor prudence over time, and thereby create an artificial justification for increasingly protective and expensive regulations:

> [E]ven inexperienced and cognitively challenged investors are capable of learning. Once freed of the responsibility and discipline of making investment decisions, investors lose the feedback mechanism that facilitates such learning. Indeed, some investors may come to believe (overoptimistically) that regulatory protections fully insulate them from investment risks. When this is not true . . . investors with overconfidence in the power of regulation will then take even less care and may face a greater risk of facing large financial losses as a result.[257]

The loss of self-protection is perhaps most manifest in the banking sector, where market discipline has been consistently waning due to its replacement by public regulation: "Market signalling mechanisms can

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256. Gregg, *Moral Failure*, *supra* note 254, at 146 (summarizing research finding "some degree of borrower misrepresentation in as many as 70 per cent of American early-payment defaults in a study of 3 million loans originated between 1997 and 2006").

257. Choi and Pritchard, *supra* note 5, at 59. A similar argument based on behavioral economics is made, in the context of welfare policies, by Scott Beaulier & Bryan Caplan, *Behavioral Economics and Perverse Effects of the Welfare State,* 60 KYKLOS 485 (2007).

also be crowded out by regulation and government guarantees: why does it matter if a bank is trustworthy or has a high level of capital if the regulator exists to look after such things and the government will provide guarantees if things go wrong?"[258]

It is not necessary for people to make perfect choices: what matters is that people are able to adopt good enough habits and rules of thumb that facilitate their choosing in a complex financial world:

> It is often thought that many borrowers are too unsophisticated to act with prudence and that they need to be protected by regulation. Though prudence requires people to become informed, this need not involve becoming immersed in complex technical information. Tradition, rules of thumb and the observation of the behaviour of other sensible people have worked for many generations as a more than adequate control mechanism for keeping personal borrowing under control.[259]

A stable and principled legal framework that emphasizes clear lines of responsibility fosters good habits and sensible rules of thumb. In contrast, the learning process is hampered by a constantly changing regulatory environment—such as in periods after crises—which renders it difficult to learn from past mistakes.[260] There is also the risk of renewing the false illusion of effective oversight, as a former head of the UK Financial Services Authority has admitted:

> They [financial supervisors] should also be cautious in describing the limits of their ambitions, both in terms of the degree of security they can offer to those who transact with financial institutions, and in terms of the scale or scope of the supervision they undertake. A regulator which claims too much will weaken market discipline, which can often be a more effective tool than regulatory intervention.[261]

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258. Booth, *supra* note 211, at 162.

259. Gregg, *Moral Failure*, *supra* note 254, at 148.

260. *See* Spatt, *supra* note 242, at 7 ("[E]xcess complexity in the formulation of a regulation can be a serious impediment to the generation of meaningful evidence.").

261. DAVIES & GREEN, *supra* note 146, at 27. *See also Fingers in the Dike: What Regulators Should Know*, THE ECONOMIST, Feb. 11, 2010, *available at* http://www.economist.com/node/15474107 (noting that the plans to create a systemic regulator have made some commentators worried about the false comfort it might create); Alex J. Pollock, *Is a "Systemic Risk Regulator" Possible?*, THE AMERICAN (May 12, 2009), http://american.com/archive/2009/may-2009/is-a-2018systemic-risk-regulator2019-possible (analyzing the pros and cons of a systemic regulator).

When regulatory reform is necessary, it should focus on clear principles that people can understand. Lengthy and technical regulations tend to alienate ordinary people—and many financial professionals—from the regulatory system, thereby promoting a psychology of dependency and carelessness. Given cognitive imperfections and the use of rules of thumb, drastic changes in the operating environment create problems, especially when the implications of those changes are not easily foreseeable. It is likely that part of the market failure during the recent crisis was due to the rapid expansion of forceful incentive schemes in banking, which traditionally has been a rather conservative industry.[262] In light of behavioral theory, significant changes cause problems not only because of a lack of information on their consequences, but also because habits, conventions, and rules of thumb, which functioned well in an earlier setting, may prove to be obsolete.

B. SMALL CRISES AND THE VIRTUES OF DECENTRALISM

Less regulation might result in more crises, but smaller ones. On balance, more frequent small crises might be advantageous to having huge crises every one or two decades. This is because crises that took place in the more distant past tend to be forgotten, their learning effect wears away over time, and people become more careless and tend to repeat past mistakes.[263] In contrast, more frequent smaller crises would maintain the caution and prudence that should always form part of financial market participation, and there would be faster learning from mistakes on both personal and institutional levels:

> [T]he idea is not to correct mistakes and eliminate randomness from social and economic life through monetary policy, subsidies, and so on. *The idea is simply to let human mistakes and miscalculations*

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262. And several commentators would like banking to be boring again. *See* Op-Ed, Paul Krugman, *Making Banking Boring*, N.Y. TIMES, Apr. 10, 2009, at A23 ("[T]his era of boring banking [1930s to 1970s] was also an era of spectacular economic progress for most Americans."); Op-Ed, Amar Bhidé, *Bring Back Boring Banks*, N.Y. TIMES, Jan. 4, 2012, at A23 ("Banks must therefore be restricted to those activities, like making traditional loans and simple hedging operations, that a regulator of average education and intelligence can monitor.").

263. *See* Jack Guttentag & Richard Herring, *Credit Rationing and Financial Disorder,* 39 J. FIN. 1359, 1379 (1984); Penny Neal, *Keynesian Uncertainty in Credit Markets,* 18 J. POST KEYNESIAN ECON. 397, 412 (1996).

> *remain confined*, and to prevent their spreading through the system . . . . Reducing volatility and ordinary randomness increases exposure to Black Swans—it creates an artificial quiet.[264]

Similarly, behavioral theory implies that it might be better to have many different regulatory systems and policies—not only because that would reduce the harmful effect of behavioral biases among regulators, but also because of positive learning effects. Regulatory variation would promote trial and error, and it would make it easier for boundedly rational people to discover what works and what does not.

This view goes against conventional wisdom. According to the standard account of recent problems in financial markets, the failure of regulatory systems was mainly due to the inability of national regulators to rein in free markets, which were therefore allowed to run wild and cause havoc around the globe. The solution, the theory goes, is to establish a global financial regulator with powers to make rules and enforce them around the world in cooperation with national regulators.

There are serious problems with this account. Note, for example, that one major area of regulatory failure has been bank capital adequacy regulation, which is already essentially global in scope.[265] Accounting regulation is also increasingly international, but that has done nothing to reduce the problem of misleading reporting of financial derivative positions; arguably, the highly politicized nature of international rulemaking has only made it more difficult to come up with a sensible solution to the issue.[266] It would be worthwhile to reconsider greater regulatory competition.[267]

It is debatable whether lack of coordination among regulatory authorities caused any of the real issues. Lack of cooperation was only an issue to the extent that the regulatory mechanisms were basically sound, but national regulators simply did not have sufficient information and powers to act. The regulatory-critical view of the crisis challenges that interpretation, and the theory of "behavioral bureaucrats" makes its case even weaker.[268] Indeed, some types of financial risk regulation

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264. NASSIM NICHOLAS TALEB, THE BLACK SWAN: THE IMPACT OF THE HIGHLY IMPROBABLE 322 (2d ed. Random House 2010). *See also* Kevin Dowd, *The Case for Financial Laissez-faire,* 106 ECON. J. 679 (1996).

265. *See supra* Part V.A.

266. *See* DAVID R. MYDDELTON, UNSHACKLING ACCOUNTANTS 128–58 (2004) (criticizing the current system of accounting regulation).

267. *See id.* 96–126 (arguing for more regulatory competition in accounting).

268. *See supra* Part VI.

have given rise to destructive coordination, While standardization and coordination may lower transaction costs, in the context of financial markets it has also magnified pro-cyclical market processes.[269] According to this view, the regulatory standardization of risk management techniques and measures (including general bank capital regulation and the infamous Value-at-Risk concept) has caused market participants to act in unison and to make the same mistakes together, thereby magnifying the likelihood of systemic crises.[270]

More importantly, the creation of global regulatory elites would exacerbate the behavioral problems discussed earlier: their special status would likely bolster overconfidence bias, and they would be even less subject to real checks and balances so that unfounded regulatory activism would be encouraged. Moreover, while there are benefits to regulatory unity, more unified (but imperfect) regulation would then impede trial and error learning processes and likely give rise to bigger and more global crises, as the same mistakes would be made by everybody at the same time.

CONCLUSION

It has been argued that, contrary to a common perception, behavioral economics does not provide a blanket theory for increasingly paternalistic regulation of financial markets. Even if behavioral economics is taken at face value (which it need not be) the implications are entirely different. Many problems due to behavioral biases and anomalies can be mitigated through light-touch regulations, and freer markets tend to promote better market discipline and more accurate pricing.[271] There are also doubts about the real significance of psychological biases, especially as many problems are caused by flawed regulations that create harmful incentives.[272] Moreover, behavioral theory implies that we should be more skeptical about the ability of rule makers to correctly perceive the real problems and to find the

269. *See* Charles K. Whitehead, *Destructive Coordination,* 96 CORNELL L. REV. 323, 345–46 (2011) (arguing this with examples).

270. *Id.*

271. *See supra* Parts III, IV and V.

272. *See supra* Parts II.C and V.A.

appropriate remedies.[273] Finally, regulatory complexity and constant change exacerbate the harmful effects of bounded rationality.[274]

This should not be taken to mean that behavioral economics calls for complete deregulation. There may be reasons (other than behavioral biases) why regulation is needed. The question is not simply about more or less regulation, but also about the manner of regulation. The thesis is that, when there are reasons to regulate, the regulatory strategies should avoid complexity; highlight clear lines of responsibility; emphasize market discipline; shun regulatory centralization; distrust regulators; and avoid constant changes to the rulebook.

There remain numerous possibilities for further research. On the empirical front, much work remains to be done in order to assess the practical importance of behavioral biases and to test the workability of behaviorally-inspired regulations.[275] In addition, it would be interesting to see empirical studies on the question of public choice theory versus behavioral bureaucrats, as an attempt to isolate the relative effects of each factor by a comparative study of different institutional settings.

Another important question is how the analysis would be affected by the inclusion of fairness behavior and moral psychology.[276] It might challenge some of the conclusions of the present Article, because highlighting cognitive imperfections is certainly a step towards greater realism, but it is hardly enough to assume that our cognitively impaired actors are all incurable egoists. Public choice theory is one area that changes considerably if we scrap the assumption of selfishness.

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273. *See supra* Part VI.

274. *See supra* Part VII.

275. Although *behavioral economics* has been inspired by empirical psychology, one of the principal weaknesses of *behavioral law and economics* is that most of the scholarship consists of abstract speculation without empirical testing. *See supra* Part II.C. (discussing the limitations of behavioral law and economics).

276. *See* Rabin, *supra* note 30, at 16–20 (discussing social preferences and fairness behavior).